

Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIII.

CHICAGO, ILL., APRIL 7, 1914.

Number 11.

You Have Bags to Tie?

Then Please Read This:

United Wire Ties

were used in 1913 by
35 Cement Manufacturers
10 Plaster Manufacturers
11 Hydrated Lime Manufacturers
and in a great number of other businesses in which bags are used.

ALL of the above companies are
SATISFIED users.



If you have bags of any kind to tie, you will find it to your interest to try our Wire Ties, as have the companies mentioned above who are among the biggest users of bags in the country. Our Wire Ties will eliminate for you any trouble you may have with bags coming open. Wire Ties are less expensive than twine, and will save time in applying. They are neat, and are very easily untied.

Note the cut above. Let us quote you prices, and send you a trial lot.

The United Wire Tie Company

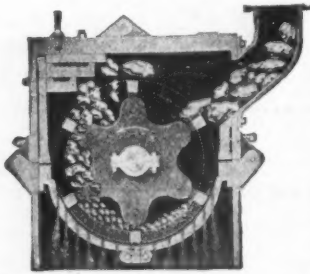
1341-1346 Nicholas Building
Toledo, Ohio

Demonstration Plant

entirely at your disposal, where we will be pleased to illustrate the following facts:

The Gardner Crusher

1. Is of the hammer type.
2. Will crush any kind of material.
3. Requires comparatively very low power for its capacity.
4. Needs no special foundations and is easily transported (Heaviest piece in No. 1 is only 350 lbs.)



Made in Four Sizes

Size	Weight Lbs.	Power h. p.	Feed in.	Capacity (Tons per Hr.)
No. 0	1,200	5-6	3	1-1½
No. 1	2,000	10-12	4	3-4
No. 2	4,000	20-22	6	8-10
No. 3	8,000	40-45	10	15-20

Equipped with ½ in. screen through which everything will pass.

90% through 20 mesh. 60% through 60 mesh.
75% through 40 mesh. 50% through 100 mesh.
65% through 50 mesh. 30% through 200 mesh.

Coarser or finer product can be obtained by changing the screens and speed of machine.

There are now a large number of Gardner Crushers in actual operation in the U. S. on all kinds of material. We, therefore, know by practical knowledge what our machine will do on most any material and we are prepared to prove our assertions.

Gardner Crusher Co. Office: 1482 BROADWAY
Demonstration Plant: 556 West 34th Street, New York

THE WHITACRE FIREPROOFING CO.

Manufacturers and Erectors of

Hollow Tile Fireproofing

The Largest Independent Manufacturers of Hollow Tile Fireproofing in the United States.

All our Ohio Product is Manufactured from Pure Ohio Fire Clay.

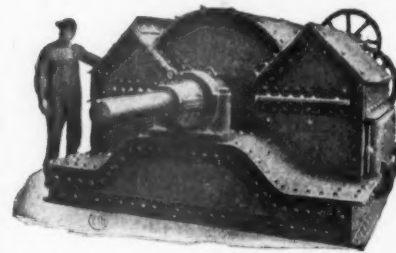
All Size Partitions, Jumbo and Hollow Brick.

Our heavy Dove Tail Hollow Blocks are designed especially for fireproof residences with stucco finish. They are suitable for any part of the building and are adapted to the various architectural designs.

**Without Our Estimate You Have
No Competition**

General Office: Waynesburg, Ohio
Chicago Office: Sales Department, 538 So. Dearborn St., Chicago, Ill.
Factories: Waynesburg, Ohio; Malvern, Ohio; Chicago Heights, Ills.

"PENNSYLVANIA" HAMMER CRUSHERS



For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.

Main Frame of steel, "Ball and Socket" Self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running. No other hammer Crusher has such a big Safety Factor.

PENNSYLVANIA CRUSHER CO.
Philadelphia
New York Pittsburgh



"HERCULES" WATERPROOFING

For underground masonry, cisterns, reservoirs, pits, coal and grain pockets.

Watertight, sanitary, hard and dustless floors.

Used with sand and cement to produce a waterproof mortar which will bond perfectly to new or old masonry and permanently waterproof, even if plastered on the inside of a cellar, where the water pressure is outside.

Hercules Colored Coatings; Plaster-bond and Damp-proofing Mastic.

HERCULES WATERPROOF CEMENT CO.
BUFFALO, NEW YORK



Service

"Service" is the biggest word in the Building Material Business.

"Wheeling" Wall Plaster quality has been proven long ago. Now we want to prove our "SERVICE."

Wheeling Wall Plaster Co.
Wheeling, W. Va.

Medusa Waterproofing Patent Sustained

In the United States District Court, Northern District of Illinois, on Feb. 13, 1914, a decree was entered declaring the Newberry Patent, No. 851,247, to be good and valid, and that the

McCORMICK WATERPROOF PORTLAND CEMENT CO.
AND S. T. SJOBERG

infringed said patent and are perpetually enjoined from making or selling waterproof cement or carrying on the process described in said patent, and that the complainant shall recover the damages resulting from said infringement. Suits against other infringers have been begun and will be vigorously prosecuted.

Sandusky Portland Cement Co.
SANDUSKY, OHIO



Mr. Dealer!

FIREPROOFING

It will pay you to handle our "Minerva" fire clay hollow tile **FIREPROOFING** — it's the best made, and our shipments will please you.

Get our prices on our 4x5x12 and 5x8x12 Bakup Block and also on our various sizes of partition tile.

We have a nice stock on hand for immediate shipments.

The Metropolitan Paving Brick Co.
Canton, Ohio

WE sell you Marquette Portland Cement with a just pride in its quality and reputation—that this pride may be transmitted to you is our one aim and desire. Our ambition is to render perfect service—the service that satisfies—and we may need your co-operation. We make our cement as good as cement can be made and we want to make buying and using it a pleasure. Every sack is carefully packed and loaded. Should a shipment reach you in condition other than first-class, or if anything else comes to your attention that we should know, it will be considered a favor if you will notify our Service Department at once.

MARQUETTE CEMENT MFG. CO.
Marquette Building, Chicago, Illinois
Works: La Salle, Illinois

NORTH-WESTERN PORTLAND CEMENT



The Reliable Portland Cement

A Portland Cement for the
NORTHWEST

**North-Western States Portland
Cement Co.**
MASON CITY, IOWA



THE dealer who sells "Chicago AA" Portland Cement makes more clear money, than he does on a cement that does not carry the manufacturer's selling assistance with it.

Our interest in a sack of "Chicago AA" does not cease when we make the first sale to a dealer. We assist our dealers in selling "Chicago AA."

The "Chicago AA" plan of co-operation for 1914 is better than ever. Let us tell you how to sell more Portland Cement.

Chicago Portland Cement Company
30 North La Salle Street, Chicago, Illinois



VULCANITE PORTLAND CEMENT



The Brand With a Reputation

ESTABLISHED 1893

Capacity (actual) 2,000,000 Bbls. the Year

FREE ON APPLICATION

FOLLOWING BOOKS:

How to Select and Proportion Aggregates.
Cement Sidewalk Paving.
Concrete Highways.
Concrete on Live Stock Farms.
Concrete Fence Posts.
Concrete Tanks.

APPLY TO NEAREST DEALER FOR PRICES

Vulcanite Portland Cement Co.

Broad Street, PHILADELPHIA

Madison Square, NEW YORK

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

WELL DRILLS ARE NOT BLAST-HOLE DRILLS

This is an age of specialization—Contractors and Quarry Operators who use Armstrong Special Blast-Hole Drills do so because the "Armstrong Special" is designed exclusively for drilling BLAST HOLES—NOT WELLS.

"Armstrong Special" Blast-Hole Drills are not well drills. We build well drills and have been since 1867, but we know, as do scores of successful contractors and quarrymen, that well drills are not designed for and will not stand the grief of blast-hole drilling (a comparison of machines which have been in operation for a reasonable period of time will convince you). Behind our knowledge is fifty years of drill building experience—behind the experience of users is the knowledge that ARMSTRONG machines are not only more efficient, but the repair, operating and "upkeep" expense is much less, due to the fact that

The Armstrong Special Blast-Hole Drill is the only Cable Blast-Hole Drill designed and sold exclusively for Blast-Hole Drilling

That is why it accomplishes more for the Quarryman and Contractor than any machine of any other type

Armstrong Special Blast-Hole Drills operating in Kosmosdale quarry of Kosmos Portland Cement Company, Louisville, Kentucky. Capacity of plant 3000 barrels daily

Every working part of the "ARMSTRONG" Special Blast-Hole Drill is designed with direct reference to hard rock drilling. The "ARMSTRONG" spudding beam—the most important feature—gives a quick, sharp, springy blow that drills more hole at less cost than any other. The "ARMSTRONG" raises the tools as fast as they drop and does not allow the tools to rest at the bottom of the hole as in the case of well drills.

Judge for Yourself

If we can prove to you that the "ARMSTRONG" will drill blast holes cheaper and better than any other machine, you surely want to know it. All you have to do is send a postal asking for proof of "ARMSTRONG" Special Blast-Hole Drill superiority, and address today to



This view shows that the Armstrong "Special" is adapted to almost any quarry condition.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



Over 40 Years' Experience Built Into This Machine

The experience of over two-fifths of a century in designing and building drilling machines for all kinds of deep drilling has enabled us to incorporate the most practical knowledge of the requirements in the design of

The "New American" Blast Hole Cable Drilling Machine

First of all the machine is built low to give it greatest stability, and the derrick is placed at one side of the center to balance the band wheel on the other.

The derrick is one of the strongest ever constructed and is designed to be raised by the power of the machine.

The important feature of the design of this machine is that it carries drilling tools weighing up to 1200 pounds, and the machine is so simple in design that it is not of excessive weight and therefore readily portable.

It delivers 55 to 60 strokes per minute and will maintain a speed of 60 strokes per minute in a dry hole to a depth of 40 feet.

It will drill 50 to 100 feet of 5½ inch hole in a 10-hour day in average working conditions. Not a *record* day, mind you, but *average conditions*.

The drilling tools are always *hung up* off the bottom when spud beam is stopped and always start on the *down stroke*.

There are no gear wheels or clutches and the spudding motion is stopped instantly regardless of the speed of the engine.

Fitted with gasoline, steam, or electric power.

Bulletin 129 tells about this improved machine. Shall we mail you a copy?

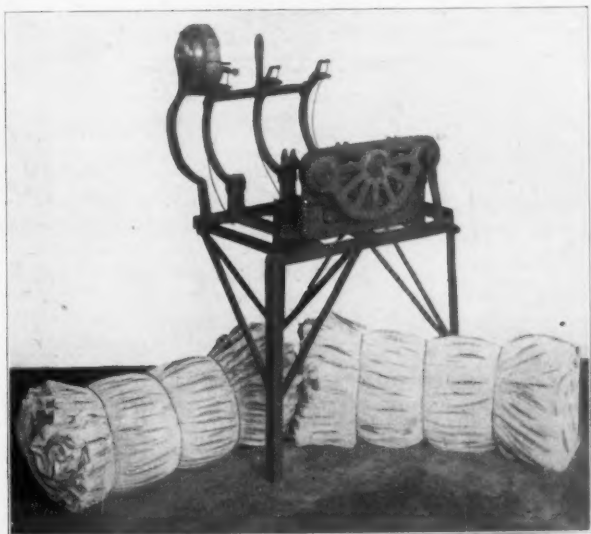


The American Well Works

General Office and Works:
Aurora, Ill.

Chicago Office:
First National Bank Building

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



Securely Tied With Three Wires

The Cost is Nothing Compared to the Money it Saves You in Labor and Accuracy in Count.

"It Counts'em and Bundles'em."

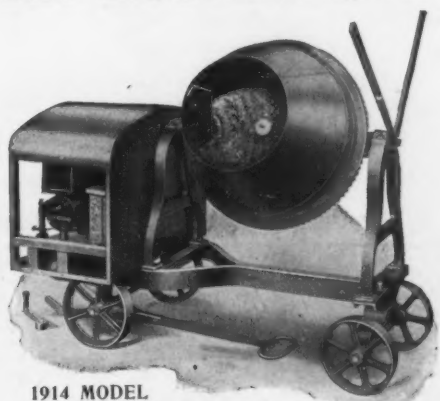
Price \$30.00
F. O. B.—CLEVELAND

FAEBERHILL MFG. CO. .-. CLEVELAND, OHIO

STOP! LOOK! LISTEN!

JUST THE MIXER YOU'VE BEEN WISHING FOR

The BIG-AN-LITTLE



1914 MODEL

Just a Little Bit Better Than The One You Thought Was Best

The small mixer has proved its worth. Contractors see that it pays better to have one or more small portable Mixers, than to mix by hand or to have a great big clumsy Mixer. The question has been to get a Dependable Small Mixer at a Low Price.

The Big-an-Little is the biggest and best small Mixer on Earth and our Low Prices amaze the Mixer world.

Your neighbor has one. They are used everywhere. Ask him. Write us NOW for full particulars.

JAEGER MACHINE CO., 219 W. RICH STREET
COLUMBUS, OHIO

A-1 Catalog



Beautiful Houses from Illinois to Massachusetts are Roofed with Reynolds Flexible Asphalt Shingles

A multitude of pretentious residences in a score of states are giving ample proof of the long-lasting surface of Reynolds Flexible Asphalt Shingles.

Every type of modern home can be protected and beautified, at lower cost, with these time-tried, weather-tested shingles. They withstand the ravages of driving rain, pelting hail, hottest sun and heaviest snow without warping, cracking, splitting, curling or blowing off. Sparks cannot set them on fire. Long Exposure cannot dull their rich color. Adaptable to every style of pitched roof, and make possible unusual architectural effects, such as roll edges, thatch effects and rounded corners.

Reynolds Asphalt Shingles

Guaranteed for 10 years—will wear many years longer—
Write for liberal agency proposition.

Rough-surfaced weather defiers made of crushed slate or granite securely embedded in pure Asphalt. Natural colors of garnet, red or gray-green which never fade and never need painting. We are the original makers of flexible asphalt slate shingles and tested them for ten years before putting them on the market. They are uniform in size—3 ins. by 12½ ins.—and are laid 4 ins. to the weather. Easily and quickly laid.

Let us send you a booklet showing photographs of modern houses roofed with Reynolds Asphalt Shingles. Write for a copy TODAY

H. M. REYNOLDS ASPHALT SHINGLE CO.
Original Manufacturer Grand Rapids, Mich.
Established 1868 Members of National Builders' Supply Association

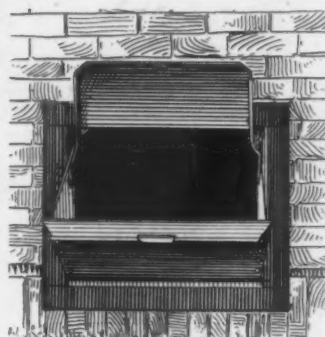
You Can Increase Your Profits
By Handling

Kewanee^{All} Steel Coal Chutes

It is the only automatic all-steel coal chute on the market. It can't break—there is no cast iron nor glass in its construction.

Locks automatically on the inside and gives absolute protection to the building. Can be opened without crawling through the coal bin.

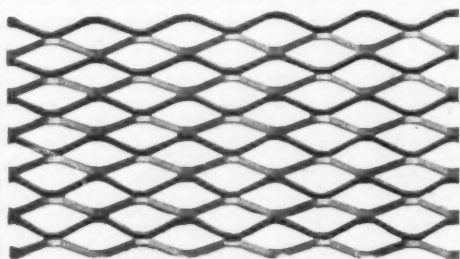
Furthermore, we are not content with selling you chutes. We help you sell them at a profit. That's what we want to tell you about. Send us a postal today, and full particulars of our "Help the Agent" plan will go to you.



Kewanee All-Steel Coal Chute
Ready for Coal

Kewanee Manufacturing Co.
Kewanee, Illinois

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

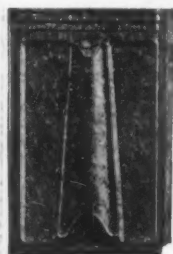


SYKES EXPANDED CUP LATH
SELF-FURRING

HAS NO EQUAL FOR

STUCCO WORK

Furnished with either an anti-rust (oil) coating, painted black or galvanized, packed in bundles containing 20 square yards, size of sheets 18x96 in.; in gauges 27, 26, 25 and 24.



SYKES "IMPERIAL" SHINGLE.

SIZE 10 x 14 and
14 x 20 INCHES.

We also manufacture all styles of roofing and siding, such as corrugated, v crimp, pressed standing seam, roll roofing, brick siding, weather board siding, beaded ceiling, etc.

Sykes Metal Lath

Present opportunities for the dealers to double their sales in this line, as Architects are specifying and building contractors are using SYKES products.

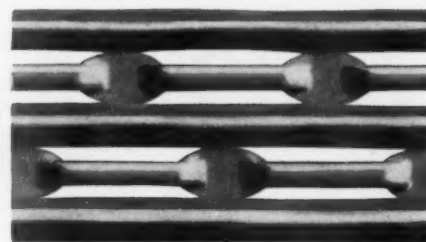
BASIC REASONS

SYKES EXPANDED CUP LATH is self-furring. This greatly reduces the cost of construction on every building where it is used. It is more economical in the amount of plaster required than any other expanded lath. Quickly erected as both sides are alike, cannot be applied wrong.

SYKES TROUGH SHEET LATH is incomparable in its utility for inside plaster work. Can be used to great advantage on any kind of a building. Unusual design, strength and keying principle.

WHY NOT HANDLE OUR PRODUCTS AND INCREASE YOUR PROFITS.

Write us at once for our SPECIAL EXCLUSIVE SALES PROPOSITION, SAMPLES, ETC.

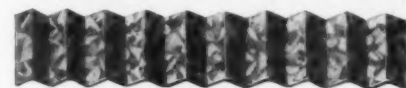


Sykes Trough Sheet Lath

The Strongest and
Most Durable Lath Made

Perfect for Interior Work

Furnished with either an Anti-Rust (oil) coating, painted black or galvanized. Size of sheets, 13½, 15½, 18½, 23½ in. wide by 96 in. long.



SYKES WALL TIE

Standard Tie 7 in. long
Veneer Tie 6 in. long

We also make Metal Corner Bead

THE SYKES METAL LATH & ROOFING CO.,
508 Walnut Street, NILES, OHIO

NOW—THIS MINUTE—

IS THE TIME
YOU ARE LOOKING
FOR A LEADER FOR
YOUR 1914 SEASON.
HERE IT IS!!!!

The "Bostwick Y" Wall Tie

Stress and strain of wall
led three ways.

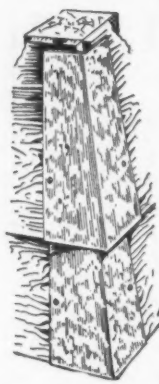
Half the number of ties
will tie the usual number of
bricks.

Talking points that make
selling easy.

A new departure, every sale
an ad.

The Bostwick Steel Lath Co.
NILES, OHIO

Manufacturers of "BOSTWICK TRUSS-LOOP" METAL LATH, "BOSTWICK TRUS-V-RIB," "BOSTWICK DIAMOND A" EXPANDED METAL, Etc., Etc.



QUICK SALES--BIG PROFITS

Metal Mitre Corners

are great favorites with carpenters and builders because they save the trouble of beveling clapboards or siding. They please the home owner for they make a strong, neat corner finish.

Made of No. 28 gauge galvanized iron with special coating of zinc oxide. They hold the paint. Easy to put on and are everlasting. They sell like the hot cakes you've heard about.

I PAY FREIGHT.

Write now for circular and samples.
Special prices to dealers.

H. G. ROBBINS - Kewanna, Ind.



DULL'S REAR DUMPING BUCKET

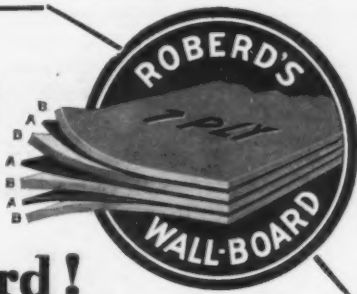
is especially adapted for
gravel plants, stripping
purposes, loading cars and
handling bulk material by
means of cableway ex-
cavators.

**THE RAYMOND
W. DULL
COMPANY
CHICAGO**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

A-A-A Asphalt Cement
B-B-B-B Fiber Board

At Last! Seven Ply Wall Board!



At last you can have a perfect wall board, stiffer, harder, tougher, more easily handled, more quickly applied and more satisfactory when on the walls. We have solved the problem. We are now making

Roberds Ideal Wall Board

with FOUR layers of fibre and THREE layers of asphalt adhesive compound. Our discoveries, our special machinery, our secret methods of manufacture and our original asphalt cement make possible the production of this IDEAL WALL BOARD.

Dealers everywhere are enthusiastic about it. Contractors prefer it to all other brands. Home owners are delighted with the fine finish and the perfect butting of edges which enables them to paper direct to the wall board.

We have doubled the capacity of our plant to take care of the increasing demand for Roberd's Ideal. No advance in prices. Special inducements to the trade. Write today for our dealers' proposition.

The Roberds Manufacturing Co.
107 Railroad Street MARION, IND.



Residence of Mr. Carl Stroebel of Stroebel Bros., Hardware Merchants,
East Jordan, Mich. Cost \$2,300. Alfred Rogers, Architect.

SPECIALTIES PAY

When they are practical and fill a real need.

KEES METAL BUILDING CORNERS

fully measure up to these requirements.

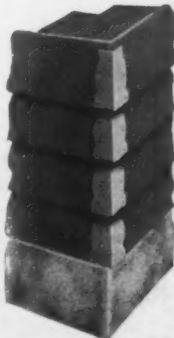
With the popularity of mitered siding corners comes the need for something that will eliminate the slow, expensive work of cutting and fitting.

Kees Corners (made of galvanized iron) fit over the ends of the boards and form a perfect finish with a great saving in labor.

Your profits are pleasing—we help you sell them.

Write for free samples.

F.D. KEES MFG. CO. BEATRICE, NEB. Box 324



This truck is operated by the County of Missoula, Montana,
in hauling material for road construction

KisselKar Truck With Hydraulic Dump Body

The patent hydraulic KisselKar dump body shown is used with remarkable success in meeting the transportation requirements of contractors and builders who measure time in dollars and cents.

It is one of the many KisselKar Truck Models that are making money for men in your business.

KisselKar Trucks are good trucks, strong, simple, economical in fuel and tires and responsive to every demand. In more than two hundred lines of business they are being used with the utmost satisfaction to owners.

They are built by a corporation that is here to stay, one which will stand the most rigid inquiry as to its integrity and resources.

KISSELKAR SERVICE

KisselKar Service is a definite, specific service written into the sale. There is no chance for misunderstanding—the guarantee covers everything plainly.

There are six capacity sizes in KisselKar Trucks—1500 lbs., 1, 1½, 2½, 3½ and 6 tons. Bodies to suit requirements.

Send for Illustrated Portfolio

Kissel Motor Car Company

548 Kissel Avenue, HARTFORD, WISCONSIN.

Boston, New York, Chicago, Kansas City, Milwaukee, Minneapolis, St. Paul,
San Francisco, Oakland, Los Angeles, Dallas and 300
other American and Canadian points.



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



Laurentian Club, Ottawa, Canada. TIGER BRAND used throughout for plastering.

Business Everywhere

No matter where you are located you ought to add this profit maker to your line.

Tiger Brand White Rock Finish

Hydrated Lime for White Coat Plastering

Freight rates are not prohibitive, and architects are specifying it in buildings from New York to Los Angeles—from Ottawa to New Orleans.

The Kelley Island Lime & Transport Co.
CLEVELAND, OHIO

Concrete's the Thing Lehigh's the Cement



Quality
Quick Delivery
Co-operation

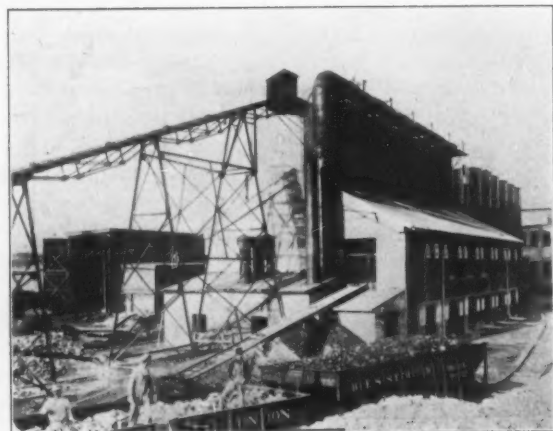
Lehigh Portland Cement Co.

11 Mills
Over 12,000,000 Bbl. Capacity

Main Office:
Allentown, Pa.

Western Office:
Chicago, Ill.

DOHERTY-ELDRED LIME KILNS



Installation of Twelve Kilns

The Improved Equipment Co.

Executive and Sales Offices: 60 Wall St., New York

COMBUSTION ENGINEERS

Complete Lime Burning Plants
Lime Kilns
Complete Gas Plants

Gas Producers
Special Industrial Furnaces
Refractory Materials

DEXTER Portland Cement THE NEW STANDARD

Sole Agents **SAMUEL H. FRENCH & CO.** Philadelphia



LARGEST TILE KILN
IN AMERICA

IT WILL PAY YOU TO HANDLE THE MODERN FIRE PROOF
BUILDING MATERIAL

We manufacture all sizes and shapes from the highest grade shale by the most modern process, including backing up, partition, floor arches and hollow brick; also DRAIN TILE.

AMERICAN CLAY CO.

25 So. Seventh St., TERRE HAUTE, IND.

SHEAPER & MAYER
Patented

DRAGLINE CABLEWAY EXCAVATOR

Large radius of operation, wide range of adaptability for wet and dry excavation. Operated with a double drum friction hoist. Digs, elevates, conveys and dumps the material in one continuous operation. Under positive control of one operator.

Sauerman Bros.

1140 Monadnock Bldg., Chicago
Engineers and Selling Agents

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIII.

CHICAGO, APRIL 7, 1914.

Number 11

PUBLISHED SEMI-MONTHLY.

DEVOTED TO

Quarry Products, Cement, Lime, Plaster, Sand and Gravel, Clay Products and Building Specialties—Fireproof Building and Road Construction.

THE FRANCIS PUBLISHING COMPANY.

EDGAR H. DEFEBAGH, Prest.

Seventh Floor, Ellsworth Bldg., 537 So. Dearborn St., Chicago, Ill., U. S. A.

Telephone: Harrison 8086, 8087 and 8088.

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Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products and Building Materials his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico.....\$1.00

In the Dominion of Canada and all Countries in the Postal Union.....\$1.50

Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.

Advertising rates furnished on application.

Published on the 7th and 22nd of each month.

Entered as second-class matter July 2nd, 1907, at the Postoffice at Chicago, Illinois, under act of March 3rd, 1879.

Copyright, 1914, by E. H. Defebaugh.

Just remember the lesson that King Robert Bruce of Scotland learned from the spider that rainy day long ago.

Many materials which you do not now handle would be added to your list of supplies if you knew more about them.

Unexpressed connection between political jingo and labor agitation is so apparent that both are being discredited by the people. Yokes off their necks when they recognize the drivers.

This is the age of associations—especially is this true among the building material dealers of the country. As evidence of this fact we have the National Builders' Supply Association and the various local and state organizations of similar nature.

Re-orders are possible where satisfaction has been sold with the first order. The building material fraternity is known for its general friendliness and untiring patience. These are valuable assets to any business. When they are combined with goods of quality re-orders should be plentiful.

The conditions in Mexico amount to a resumption of the "dark ages." Mountain bandits and soldiers of fortune of every type are holding high carnival. Even the proud cross of St. George and St. Andrew is mocked at, while the golden eagle that surmounts the battle staff of Old Glory has got his head under his wing on the left side. A few lies are enough to pay civilization for a life, which proves that civilization is cheap, and in the reckless festival of barbarism the best thing seems to turn bandit and so play the game to a finish if you are forced to take any interest in Mexico.

Business always comes quickest to the building material dealer who goes farthest to meet it.

Keep your eyes open for new materials. You will find first announcements of these in the advertising pages.

By making your collections at the earliest possible moment you will have more time and be in the proper frame of mind to go after new business during the coming season.

It is no time to smile when you are face to face with adversity. Roll up your sleeves, grit your teeth, clench your fists and fight your way out of the difficulty.

Dusty concrete floors can be avoided, but it is seldom that even the best architects look into this annoying circumstance for their clients. It is doubtless easier to say that all concrete works that way than to attend to the matter. After the contractor gets stung on this he will appreciate your tip, even if the architect insists upon overlooking a bet.

The surprising selections for the locations of the new regional banks provokes wonderment as to just how it happened. After all, the location of the regional bank may have little or no significance, for the actual contact with the public will be through the branches. The new money plan will be better understood when the actual workings of the broadening of the distribution of credits begins. Probably no change will be perceptible for a long time, because the new officials will have to become accustomed to the new machinery, and the established banking ideas of quick assets will prevail while the "old line" bankers are in control. Our readers are naturally more interested in the special topic of building loans. This is not so much a matter of banking, after all, as it is more pointedly a development of the popular ideas with regard to the importance of the housing problem.

Now that we have got the Panama Canal, it looks like we don't know what to do with it. A very considerable number of good United States dollars have been spent, and a very small part of it was paid to our own citizens, due principally to the incompatibility of labor arrangements in this country with military regulations, which is otherwise called climatic conditions. The joke about national maritime trade with the villages along the west coast of South America is not worth speaking of seriously, and probably the total commercial tonnage of the canal in a century will not amount to the normal supplies of the port of Boston for a single year. More money has been spent on printer's ink in the discussion of tolls than the collectors will ever take in. Without any good reason for it we have the Panama Canal, and if it can ever be useful to any human being, for the Lord's sake let them use it freely. Why charge toll for the enjoyment of a highway which we only built to prove that we could do it?

News About People and
Things of Importance

With You and Me

Comments of Interest
to the Trade

Concrete roads and pavements consumed 1,750,000 barrels of cement in 1912 and 4,200,000 barrels in 1913. This amount of cement would build a 16-foot concrete road, considerably farther than from New York to Chicago.

A. Y. Gowan, president of the Lehigh Portland Cement Co., returned with Mrs. Gowan on March 28 from a short pleasure trip to Europe. They went directly from New York City to their home in Cleveland.

At the annual meeting of the National Fireproofing Company, Chicago, Ill., recently, Sidney F. Heckert was elected a director, increasing the number to twelve. Other retiring directors were re-elected. The stockholders authorized the appropriation of \$30,000 for furthering the development of the Hayesville, Ohio, tract of the company.

John J. Cook, of Cherry Valley, N. Y., has invented a concrete post which promises to revolutionize fence building, it is said. The posts are made in a steel form, which Mr. Cook furnishes and can be made by anyone, it is claimed, at the cost of wood posts. They will, of course, last forever, and will greatly improve the appearance of the farm.

There is a movement on foot among several large manufacturers of building materials to arrange for a general exhibition of construction material in Cincinnati, Ohio, during the next year. The management of the Manufacturers' Permanent Exhibit building has been asked for information concerning the time when that structure will be available for such a project, that the exhibition is assured.

C. A. P. Turner, C. E., Minneapolis, Minn., desires to announce to his friends and patrons the removal of his offices to the sixth floor of the new Walker-Burton "Mushroom System" building, First avenue North and Seventh street.

J. F. Benton, genial and energetic representative of the Kent Mill Co., paid us a short visit the first of the month. Mr. Benton recently "put one over" on the editorial staff of ROCK PRODUCTS AND BUILDING MATERIALS by taking unto himself a wife and departing upon a trip East without even letting his best friends in on the secret. We extend to him belated but heartiest congratulations and venture to assert that if his voyage on the sea of matrimony be as successful and satisfactory as that of his business life, there will be small cause for complaint.

J. P. Beck, general manager of the Cement Products Exhibition Co., and manager of publicity, Universal Portland Cement Co., returned to Chicago a few days ago from a three-weeks' sojourn at Gulfport, Miss., where he enjoyed a well-earned vacation after his arduous duties in connection with the recent Cement Show. He demonstrated daily that his control of the golf stick is just as evident as his marvelous conception of the essentials necessary to the successful conduct of a great cement products exhibition. Mr. Beck returned in splendid health, showing the results of the wonderful building-up qualities of the gentle Southern breeze just at this time of the year, especially when supplemented by the brassie, the putter and a non-committal caddie. His vacation was a big success.

The Canada Way.

The redoubtable general sales manager of the Canada Cement Co., limited, is W. H. Ford, a "Ford of Charleston, Sah!" when he is in his sunny southern home, with all that "fore de wah" aristocracy of the meaning. But in the world of cement, where he has won a leading part, Mr. Ford is best known by his accomplishments and gifts as a business man of the most modern successful and popular type. He is up to the minute in every detail of the continent-wide territory of the activities of his company, and personally knows more of his customers and the users of cement throughout Canada than any other man. His wholesouled sincerity has won the dealers in building materials into a cooperative and actively interested body of workers for the extension of sales of cement. Every dealer is a booster for Canada cement, as well as a strong advocate of concrete construction. They use the name of Ford like a household word, and consider the cooperative policy as a part of the program of every business day. The biggest dealer of Montreal in talking about conditions in Canada recently said: "We don't measure credit altogether on the rating that indicates ability to pay bills or the certainty of enforced collections, because it is better business to depend upon profitable sales which will provoke prompt payments and liberal re-orders."

Every business man pushes that staple article in his line upon which he is sure of making a profit, and the application of this idea is the foundation of Mr. Ford's broad-minded policy. All the dealers in Canada make a profit by selling Canada cement, with the full consent and assistance of the cement



CEMENT ORATORIO, BY W. H. FORD. THE GRAND CHORUS OF DEALERS (ALL PARTICIPATING): "GREATER PROSPERITY THROUGHOUT THE DOMINION FROM COAST TO COAST BY THE WIDER USE OF CANADA CEMENT."

company, and that builds up the popularity of the product with the dealer.

Once a year Mr. Ford takes a couple of months during the winter time to visit dealers in the principal cities of the Dominion. It is very much like a "joy ride" upon a big scale, for it's an exchange of greetings from one group of friends and companions to another all along the line from Halifax and Cape Race to far off Sasgatoon and Vancouver, with all the thriving cities in between. It's a "chorus of all Canada singing the harmonies of the oratorio of cement."

We have always advocated harmonious cooperation, and exhorted the dealers and manufacturers to recognize their common interest and practice reciprocity. Here is the best example of just how it works in practice. The dealers of Canada are loyal to one another, loyal to Canada cement and to the policy that makes a profit. No one can blame them, it's but natural. All other dealers are made of the same kind of stuff.

Robert A. Burnett was recently elected vice-president of the Western Stove Co., Chicago, Ill., and will take an active part in the management of that important concern. Mr. Burnett has been a large stockholder in the company for some time.

H. W. Johns-Manville Company, New York, N. Y., announces with much pleasure the appointment of Fred B. Smith as assistant to the president. For many years Mr. Smith has been secretary of the international committee of the Young Men's Christian Association.

At the annual meeting of the National Fireproofing Co., Sidney F. Heckert was elected a director, increasing the number of directors to twelve. T. Hart Given resigned as a director some time ago, and Henry M. Keasbey, a vice president of the company, was elected to the place. Mr. Keasbey and the other retiring directors were re-elected.

The J. B. Ehrsam & Sons Mfg. Co., of Enterprise, Kansas, was awarded the contract for furnishing the machinery as well as the elevator and conveyor equipment for the big all-steel mill that the American Cement Plaster Co. is erecting at Ft. Dodge, Iowa. This is one of the largest cement plaster mill machinery and equipment contracts in the history of the industry.

The Security Cement & Lime Company, Hagerstown, Md., reports business as picking up remarkably since the advent of more seasonable weather. Shipments of cement and chemical lime are running a little behind as compared with the same month last year, but agricultural lime and hydrate shipments are going out with a rush and the outlook is for a record breaking season.

John R. Collette, sales manager, Kewanee Manufacturing Company, Kewanee, Ill., paid us a very pleasant little visit just as we were going to press. Mr. Collette possesses those aggressive and up-to-date ideas which are a necessary qualification for a director of sales, and we are more than ever persuaded of the importance of coal chutes as a specialty which every live dealer should handle.

The Link-Belt Company, Chicago, Ill., manufacturers of the Link-Belt silent chain drive for the transmission of power, elevating and conveying machinery, locomotive cranes, power house conveyers for coal, ashes, etc., announce the opening of an office in Detroit, Mich., Room 911, Dime Bank building. L. W. Longan, formerly connected with Chicago and Indianapolis works of the Link-Belt Company, has been placed in charge.



The Builder's Poet



Getting Educated

I

The educating value of traveling is said
To broaden your experience, and make you
seem well read,
So you can mention, careless like, a certain
place you've been
And make a good impression on the com-
pany you're in.
My wife decided some time since that we
would take a trip;
'Twas pretty hard to bring me 'round, I
didn't take to it,
But finally we started, and my education
now,
If distance counts, must be about completed,
anyhow.

II

We stopped awhile in Washington, then
saw the Great White Way,
Where the night force works in eight-hour
shifts, and everything is gay.
We went to Boston, Buffalo, then came back
by the Soo,
And saw most all there was to see, did all
there was to do.
The restaurants we boarded at were mostly
à la carte,
Where a really satisfying meal would
almost break your heart;
The hotel rooms we rented cost about as
much per day
As you could rent a house back home for
two months, anyway.

III

Before we left I thought I had expenses fig-
ured out,
But my ignorance and narrowness were
proved beyond a doubt.
I tried to keep account of all we spent upon
the tour,
But when I figured up at night I knew we'd
soon be poor.
It sort of took the edge off the enjoyment
that I got;
But I tried to get my money's worth, and
Lord knows 'twas a lot.
So we visited museums, zoos, saw every
public park,
And looked at churches, schools and such
each day 'til after dark.

IV

If you have ever traveled, I know we'll both
agree,
The song's misleading where it says this
land of ours is free;
But traveling is broadening, and educating,
too,
You never quite appreciate your home 'til
you are through.
It only goes to show a man is never quite
content
When he's amassed some property, until
the whole is spent.
But now my education is complete, I'll set-
tle down—
My whereabouts, from this date on, will be
right here in town.
—Frank Adams Mitchell.

The Cement Products Company, of Decatur, Ill., is building a new plant on the three acres which it purchased from the Decatur Brick Company.

The National Fire Protective Association will hold its 18th annual meeting in Chicago, May 5-6-7, at the La Salle hotel. An interesting program has been mapped out by its officials.

David M. Kirk, vice president of the Crescent Portland Cement Co., Wampum, Pa., has returned to his home in Pittsburgh, after spending the winter with his family at "The Breakers" in Florida.

Charles T. Harris, sales manager of Fiske & Co., dealers in tapestry brick, of New York City, spent a few days in Houston, Texas, as the guest of H. C. Vandaveer of the Vandaveer Clay Products Co. Mr. Harris is vice president of Fiske & Co., who are the originators of the rough faced brick being used on buildings, and went to Houston in the interest of his product.

"Waterproofing for Cement Houses," issued by the Ceresit Waterproofing Co., Chicago, Ill., interests immediately. In this booklet the problem of waterproofing cement stucco houses is discussed logically and interestingly. Such a careful treatment of this subject is bound to increase interest in the use of cement stucco, and in the necessity for safeguarding against dampness. The booklet is written around Ceresit Waterproofing Compound, which is explained by the fact that it is issued by the Ceresit company.

The Virginia Geological Survey, University of Virginia, Thomas Leonard Watson, Ph. D., director, has issued Bulletin No. 8 which is the biennial report of the mineral production of Virginia during 1911-12. It covers zirconiferous sandstone deposits near Ashland, Virginia, and also the geology of the salt and gypsum deposits of southwestern Virginia. The bulletin was arranged by Geo. W. Stose.

The National Brick Manufacturers' Association has contributed 10,000,000 brick, freight prepaid and delivered on the exposition grounds, to the Exposition of Big Ideals to be held in New Orleans. This generous donation was decided on at the recent annual convention of the brick manufacturers in that city. The contribution will amount in round numbers to \$100,000. The brick will be ready for shipment by May 15.

The annual meeting of the American Road Builders' Association for the election of officers was held at the Hotel Astor, New York, N. Y., recently. The following officers and directors were elected: President, W. A. McLean, commissioner, department of public works, Toronto, Ontario, Canada; first vice-president, George W. Tillson, consulting engineer, borough of Brooklyn, N. Y.; second vice-president, A. W. Dean, chief engineer, Massachusetts highway commissioner, Boston, Mass.; third, vice-president, A. B. Fletcher, highway engineer, California highway commission, Sacramento, Cal.; secretary, E. L. Powers, editor "Good Roads," New York, N. Y.; treasurer, W. W. Crosby, consulting engineer, Baltimore, Md.

National Builders' Supply Association

The Need of a National Builders' Supply Association

The National Builders' Supply Association essentially appeals to those "whose influence is most needed in the kind of industrial team work that is supplanting ignorance with intelligence, hatred with fellowship, ruthless and barbaric business warfare with broad, constructive cooperation for the elevation of the ideals, ethics and practices of the whole industry. No manufacturer today can operate his business along the lines of highest intelligence and efficiency without team work with his competitors, without that cooperative study of trade tendencies and trade problems that is only possible in a well-organized association of the main body of the members of his industry. He must command a bird's-eye view of the vital statistics of his industry, and must be in touch with the best minds and the best methods in that industry, before he can work to the best advantage."

The foregoing should appeal just as strongly to the building supply man with one yard as to the man who has his yards in every portion of his city or state, and while the above quotation was not written with direct reference to the National Builders' Supply Association, yet it might well have been. It is an extract from an article entitled "Association Snags," appearing in the Saturday Evening Post of March 28, 1914; an article that should be read by every builders' supply man whether he be a member of an association or not.

This association movement is in the air. There is no trade or industry but what has an association of some kind or other, and that trade or industry which has the largest association is in the main the most influential and prosperous. No matter how just or needful an improvement may be, the fact remains that it cannot be put into effect unless there is a concerted demand for it. The demand cannot be made, much less heard, however, unless there is some one to make it. That the builders' supply dealers of the country today can help their business by active, intelligent association work not one of them can deny.

Such an organization is the National Builders' Supply Association, which can be utilized as a clearing house for the progressive ideas of the dealers all over the country, receiving from those who have already benefited therefrom ideas and methods which can be distributed to the dealer who has in the past gone along without the helpful assistance of cooperative effort.

Further than this, how much would it be worth for the building supply man of a community to be able to write to his National headquarters and say to them: "Send us an efficiency engineer. We

want our yards to be laid out in a modern, economical manner. We want a man who not only can do this, but who can also install an accurate cost system so that we can know what it costs us to deliver and warehouse our material."

Ninety-nine per cent of the dealers throughout the country today simply guess at this information and lay their yards out by the rule of thumb. With a large and cooperative membership, the National Builders' Supply Association could afford to employ a capable engineer whose duty it would be to travel from town to town, giving local men who are members of the association the benefits of his advice and experience.

The examples cited above are but two of the unlimited ways and means by which an association can be made useful to its members, an organization worth many times over what it asks the member to pay in return. Therefore, if you are not already affiliated with the National Builders' Supply Association, we are going to repeat our former request that you make use of the application blank which you will find below and send it in immediately to headquarters, thereby showing that you have become possessed of the prevailing spirit of the day.

N. B. S. A. Notes.

Applications for membership have been received from the following:

John H. Von Steen Co., Beatrice, Neb.
Stipes & Hecker, Champaign, Ill.
Alton Brick Co., by Mr. Eben Rogers, Alton, Ill.
Bonner & Marshall Brick Co., Chicago, Ill.
Calumet Supply Co., Gary, Ind.
Des Moines Fuel & Supply Co., Des Moines, Ia.
Duluth Builders Supply Co., Duluth, Minn.
James Fryer, Chicago, Ill.
Henry Frerk Sons, Chicago, Ill.
Independent Coal Co., Kenosha, Wis.
Jamestown Paint & Varnish Co., Jamestown, Pa.
Arthur H. McCarrel, Augusta, Ga.
Thomas Moulding Brick Co., Chicago, Ill.
Mayville White Lime Works, Mayville, Wis.
Nast Bros. Lime & Stone Co., Marblehead, Wis.
Standard Material Co., Chicago, Ill.

The headquarters of the association in Room 1211 Chamber of Commerce building, Chicago, are now open and in charge of Secretary L. F. Desmond, who cordially invites all of the members to be sure and make it their headquarters as well when in Chicago.

He also thinks that the members should write to headquarters with their troubles and, above all, their suggestions, more than they do. This is going to be a clearing house for just such purposes and

he believes that the members should lose no time in getting it started.

Mr. Desmond is also looking around for an "Association Motto" which he believes should decorate the walls of headquarters, and asks that members throughout the country write in to him with their suggestions as to what this motto should be. Now then, let's get together and see if we cannot send him in so many good ones that he will need the assistance of President Cormack and several others to try and pick out the one best suited for the purpose.

Since the last issue, another "booster" has been added to the list of field secretaries in the person of Chas. Wilson, of the Master Builders Co., Cleveland, O. We wish Mr. Wilson every success in his efforts to "cop the cup," and while on this subject it might be well to remind the other field secretaries that they will have to get busy at once if they are to remain in the running, as just now Brother Foster, from Boston, is leading the field and going good.

If the plans of President Cormack mature there will soon be a very friendly but keen rivalry existing between the manufacturers with the object in view of booming the National Builders' Supply Association. Mr. Cormack is not yet ready to disclose just what it is going to be, but he has told us enough about it to make us believe that it is going to be a hummer.

The manufacturers are not taking as much advantage as they ought to of the association's request for literature in connection with their particular business. Hardly a day goes by but what requests are received from members and non-members in different parts of the country desiring information regarding certain materials and where they can be bought. It is the earnest wish, therefore, of Secretary Desmond that every manufacturer who reads this notice should arrange to send to him as soon as possible such literature as they may have for distribution relating to their business. As time progresses the advantages to be derived from the operation of a bureau such as this will become more apparent, and those who now will aid and assist in building it up will then feel well repaid for their earlier efforts.

Copies of Bulletin No. 2 of the N. B. S. A. have been sent to all the members and as many non-members as possible, and if any one failed to receive a copy we would suggest that they write in at once and ask for it, as the April bulletin is full of good things.

The Western Engineering & Manufacturing Co., Wilmington, Del., has been incorporated with a capital stock of \$55,000, by Charles B. Bishop, Clarence J. Jacobs and Harry W. Davis. It will manufacture, buy, sell and deal in fireproofing materials.

NATIONAL BUILDERS' SUPPLY ASSOCIATION.

Chamber of Commerce Bldg.

Chicago, Ill.

Application for Membership.

The undersigned being heartily in accord with the principles and aims of the National Builders' Supply Association does hereby apply for membership:

Firm name.....

Signed by.....

P. O. Address.....

Date.....

Officers.

President—Edw. K. Cormack, Chicago.
Treasurer—John J. Voelkel, New Orleans.
Secretary—L. F. Desmond, Chicago.

Directors.

J. H. Allen, Lincoln, Neb.
Charles Warner, Wilmington, Del.
C. N. Ray, Detroit, Mich.
W. F. Jahncke, New Orleans, La.
C. M. Kelly, Providence, R. I.
W. W. Coney, Cincinnati, O.
L. W. Macatee, Houston, Texas.
D. J. Kennedy, Pittsburgh, Pa.

THE RETAILER

Eastern Pennsylvania Dealers to Organize

Builders' Supply Men Will Assemble at Reading, Pa., April 9 for the Purpose of Forming a Permanent Association—Headquarters Will be at the American Hotel.

Realizing the need of an association of buidlers' supply dealers, retailers of Eastern Pennsylvania, after numerous little conferences held in various parts of this district, have decided to hold a meeting on Thursday afternoon, April 9, for the purpose of organizing themselves into an association. The meeting will be held at the American hotel, Reading, Pa., at 2 o'clock. It will consist of two sessions, the one at 2 o'clock being exclusively for retailers. At the close of this session manufacturers and their representatives will be invited to an open session.

There are many reasons why an association of builders' supply retailers in this district is considered of great value. After years of hard but fruitless labor individually, the dealers have come to realize that a majority of the reforms desired can be secured only through united effort. The present methods of distributing building materials in Eastern Pennsylvania are not entirely satisfactory to the retailers. They are not securing the amount of business which their position as dealers entitles them to. There also exists between some of the retailers small differences which, it is believed, will be partly, if not entirely, eliminated through the graces of a retailers' association.

Manufacturers of building materials are as a rule broad-minded men, willing to coöperate with the retailers in an endeavor to secure such reforms as the manufacturers are in a position to grant. It is only as an organized body of men that the retailers can request of the manufacturers reforms that will be recognized as such. With individual demands the manufacturers can do little, as it is good business judgment to treat all alike. When a request comes from a body of individuals engaged in the same line of business, it will be sure to receive consideration. It will give the manufacturers an opportunity to inaugurate a policy which will give the same amount of benefit to all of their customers.

Credit Questions Vital to Dealers.

Questions relative to the extending of credits and protection of accounts are of the utmost importance to every building material dealer. Practically all business in this line is done on a credit basis. A great many risks are taken every day by retailers. These risks can be reduced to a minimum if the dealers in a given territory work for the welfare of the trade and their own peculiar interest in the trade. Through a policy of coöperation and reciprocity thousands of dollars can be saved annually.

While this is primarily a local proposition and should be considered as such in every fair-sized city, the district association can assist materially by bringing the dealers together for their mutual benefit, thus creating between them a better feeling for each other and enabling them to work out to complete satisfaction the peculiar intricacies that perplex them.

Association Bring Lien Law Reforms.

Practically all of the lien laws that exist at present in favor of the man who supplies the materials for construction work have been placed upon the statute books through the help of associations. Legislators listen quite attentively to the demands of builders' supply dealers' associations. They recog-

nize the merits of the various demands made by the supply men and not only do not oppose such measures as may be presented to them, but lend their support by working actively for them. Individual effort along this line is good; but individual effort, when backed up by united demands, produces results.

The gathering together of retailers in annual conventions always results in giving to the progressive members new ideas and suggestions which they are enabled to take home and work out to suit their local needs. It is quite frequently the case that retailers, doing business in close proximity to each other and occasionally becoming competitors, are not at all acquainted with each other. They remain strangers for long periods of time. It is beneficial for all parties thus concerned that they become acquainted. When a friendship springs up from an acquaintanceship formed at an association meeting or elsewhere, each dealer invariably finds out that the other fellow is not the "rascal" he always thought. Dissemination of information is valuable to everyone—and surely to building material dealers. For popular good, retailers of any district, such as Eastern Pennsylvania, should get together in an association.

An interesting program is being prepared for the meeting to be held at Reading next Thursday. At the executive session, to which retailers only will be admitted, questions of interest to every man engaged in the business will be discussed. These questions, together with such others as may be brought up by the gentlemen present, will also be discussed in the open session with the manufacturers and their representatives.

Every retail dealer in the Eastern portion of Pennsylvania is desired at the first meeting of the organization which will be formed at Reading. Every man will be welcomed by the local dealers at Reading and will be given the same opportunity to be heard and to present such items of business before the assemblage as may be considered of benefit to himself and the trade.

Dealers Protest Against Proposed Spotting Charge on Private Spurs.

President Edward K. Cormack, of the National Builders' Supply Association, has protested by telegram to Commissioner Harlan of the Interstate Commerce Commission against the proposed charge for spotting or placing of cars for loading or unloading on so-called private side tracks or industry spurs. The policy has obtained for many years for the roads of this country and Canada to encourage the building of spurs, and that by this method the carriers have been enabled to develop their traffic enormously with little or no expense to them. The railroad rate has always been recognized as covering not only the conveyance of the shipments but the full service, which includes furnishing the car, the proper place to load it, the conveyance of the car and its terminal delivery. Where there are no spur tracks the present rate includes placing the car at the public team track at destination in an accessible position for unloading. The organization claims that this constitutes a service which is not obtained by the industries having spur tracks.

The delivery on an industry spur is not supplemental to any other delivery.

Freight cars arriving at break-up yards are there segregated and switched to the various tracks to which they are ordered; some are placed on industry spurs, while others are placed on public team tracks, in either event there is a switching movement and, if a shipper or receiver pays for a team track delivery and does not receive it, but receives a spur track delivery, which costs the carrier no more and in the majority of cases less, he should not be compelled to pay a charge for a service which has not been rendered, but on the contrary it may well be argued that he should be required to pay less for accepting delivery at a point which is less expensive to the carrier. These industry spurs form a part of the carriers' terminal facilities and should be so considered.

The advantages to the carriers are next considered. Thus, a spur track assures to the carrier both inbound and outbound traffic, and is so recognized. It increases the terminal facilities of the carriers at little or no expense to themselves, and so saves them interest, taxes, insurance, maintenance, operation, etc., besides reducing their liability.

In the builders' supply industry, it is stated, cars are generally loaded or unloaded from the spurs within a few hours, the average being less than twenty-four hours. This gives the carrier the use of the car fully that many hours in advance of what could possibly be obtained by public team track delivery. It thus saves at least one day's per diem.

J. H. Phillips has purchased a site at Winston-Salem, N. C., and will erect a plant to manufacture building materials.

The Sommerfield Co., Inc., Manhattan, N. Y., has been organized to manufacture and deal in roofing materials, etc.; capital stock, \$30,000. The incorporators are H. Sommerfield, J. Levy and S. Reichman.

The Concrete Material Co., Chicago, Ill., has been incorporated with a capital stock of \$2,500, to manufacture, sell and deal in building materials. The incorporators are: James F. Wood, L. G. Costello and M. Goldzier.

The C. B. Hess Supply Co., Cincinnati, Ohio, has been incorporated with a capital stock of \$5,000, to deal in building materials. The incorporators are E. A. Winter, C. B. Hess, L. H. Walter, A. L. Hess and W. C. Walter.

Star Molding Company, Chicago, Ill., has been incorporated with a capital stock of \$10,000. The concern will deal in lumber, molding, interior finishings, etc. The incorporators are as follows: Charles Sterba, Louis J. Kujki, C. Ryter, Edward Sterba and John Ryter.

The Florida Builders' Supply Co., Jacksonville, Fla., has been organized and is now in operation. Thomas W. Mitchell and M. W. Venable are the proprietors of the new concern and it is stated that a contract has been let to the Florida Schulb Concrete Construction Co. for the erection of a \$10,000, two-story, reinforced concrete building which will be used exclusively by the company for its business. The concern will handle a full line of builders' supplies.

News of the Trade

The Chicago Situation.

Building Material Market at a "Dead Standstill" Resulting from Brick Passers' Strike—Dealers in Every Section of the City Are Affected.

The usual percentage of labor troubles has again had its effect on the opening of the season's activities in building material lines. However, the much heralded "era of business readjustment" failed to assert its beneficial influence prior to the advent of the present difficulties resulting from a strike involving 6,000 laborers in the employ of the brick manufacturers. There was little, if any, extraordinary indications of more than normal activities in building supply requirements at any time since January 1st. The season was backward for one thing, and a large number of big projects anticipated absolutely failed to develop at the expected period—and the result is quite severe as a consequence.

The present inertia among the building supply dealers reflects the whole industrial situation in Chicago and vicinity. Information is unavailable on which to base predictions as to its duration. There is no feeling among the dealers that relief from prevailing conditions is in sight. It now looks like a year of extreme uncertainties in every department of the development of building projects—both large and small. Hence it is no "small time" matter when we realize the full significance of the present situation. The immediate sufferers are the material dealers, whose selling and delivery equipment are practically forced to idleness.

Louisville Retailers.

Ending of Cold Weather Indicates Increase in Demand for Supplies—Owen Tyler's Concern Purchased by the Tyler Building Supply Co.

Louisville, Ky., April 4.—The fact that business has picked up among the retailers of building materials recently to a very marked extent seems to bear out the assertion that previous slow business was due almost entirely to bad weather, and not to any extended business depression, or to a general reluctance to build. Although there has been only a comparatively short period of mild weather, things have improved very decidedly, not only in prospects, but in actual orders placed for brick, tile and other roofing, and building materials in general, and indications now point to a spring season much better than that of last year. At present most of the work is on small buildings, but the situation is steadily growing better, and the trade is feeling much better than was the case a month or so ago.

The building supply business which has been handled for a number of years by Owen Tyler has been taken over by the newly organized Tyler Building Supply Co., with a capital stock of \$10,000. Mr. Tyler will no longer be actively connected with the business, the officers being Isaac H. Tyler, president; Isaac Bond, vice president, and William F. Lang, secretary and treasurer. The company takes over all of the lines of building materials which were handled by Owen Tyler, with few exceptions. Isaac H. Tyler was in St. Louis recently on business connected with some new lines which the company will take on.

The Hy-tex line of brick, formerly handled by Owen Tyler, has been added to the building material department of the Union Cement & Lime Co., the Hydraulic Brick Co. offering the line to Manager

L. M. Parsons when the Tyler concern was re-organized recently. An exhibit of the various brick included in this well-known line is to be a conspicuous feature of the Union display room in the Starks building, to which Mr. Parsons has given much attention, and which is now a complete sample room of high-grade building materials. Mr. Parsons reports that there is a satisfying number of inquiries on hand, although there is as yet comparatively little work on.

One announcement of interest is that the Union Cement & Lime Co., which already had taken over the agency for the Hydraulic-Press Brick Co., relinquished by Owen Tyler after 18 years, has made arrangements to represent also the Monarch Metal Weather Strip Co.'s products. F. A. Sampson, secretary of the Union company, said that business in lime, cement and brick has opened up nicely and that he looks for a busy spring. W. P. Clancy is a new salesman with this company. He was formerly with the R. B. Tyler Co.

Roofing materials are about the best line on the list just now, according to L. M. Rice, of the Central Paint & Roofing Co., who returned recently from New Orleans, where he went to spend a week and stayed for seven weeks. The bad weather of the past four or five weeks showed up the defects in many a roof, and with the coming of mild weather repairs are general, with a good deal of new construction to help out. Mr. Rice and other members of the trade handling roofing are therefore well pleased with the way the season is opening up.

One of the nicest sales landed recently in Louisville was closed by H. H. Frazier, sales manager of the R. B. Tyler Co., for 20,000 face brick for the Henry residence on Napoleon boulevard, the goods of the Western Brick Co., Danville, Ill., being placed for this order. Kosmos cement, which is retailed by the Tyler company, is also moving well, and wall plaster, manufactured by the United States Gypsum Co., is also going nicely. Mr. Frazier was in Brazil, Ind., last week, visiting the Brazil Clay Co. on business.

Plans are nearing completion for the new high school for boys which is to be erected by the Louisville board of education shortly, J. Earl Henry being the architect of the board. The building is to have a frontage of 358 feet on Brock street and of 150 feet on Breckenridge. None of the contracts have been let as yet, as the board is awaiting the sale of the million-dollar bond issue out of the proceeds of which the school is to be built before calling for bids. It is announced, however, that the outside walls of the structure, which will be three stories in height, with basement, will be lined with hollow brick, and the partitions will be of hollow tile. The floors will be of tile and concrete, covered with maple laid on strips. There will be little woodwork, hard plaster jambs and glazed brick window sills being specified. The roof will be of concrete, with a tar and gravel composition coating. The cost of the building, ready for the furniture, will be between \$275,000 and \$300,000, and as it will be the biggest job of the year in Louisville, in all probability, the trade is awaiting the letting of contracts with some eagerness.

Warren Brothers, who handle Berger metal lumber in Louisville, note a growing demand for this line of goods as the season advances, many of the better residences planned using metal lath and other material in this line. Other goods are also doing well, considering the fact that the building season has as yet hardly begun, roofing goods being fairly good. G. S. Warren, one of the firm, returned recently from a trip through Western Kentucky and

Indiana. Fred Von Siebenthal, who was formerly with the Ten Broeck Tyre Co., of Louisville, after several years with the Louisville Builders' Exchange, has been added to the firm's sales force.

James Obeare, secretary and treasurer of the Louisville Builders' Supply Co., expects the East and West End warehouses which it has established in Louisville to help business considerably this season. East End business will be handled from the warehouse at Garden and Green streets, and that in the West End from Thirteenth and High streets, at which point also the stables of the company are located. It is expected that the economy in time resulting from the shorter hauls which will be necessary will be very much worth while to the company. Orders are coming in nicely at present, lime, cement and Cannelton sewer pipe being the leading lines, with brick lagging somewhat, as far as small lots are concerned. Several carloads of Pataka face brick have been delivered, however, for the Seelbach Hotel annex, which is now well under way, the steel framework being up and almost ready for the walls. A quantity of Coral Ridge common brick has been supplied for some factory jobs in Louisville, giving entire satisfaction.

San Francisco Retailers.

San Francisco, April 2, 1914.—Business continues to improve in California, though the last fortnight has hardly brought as much expansion as was expected. The principal complaint is scarcity of money, due to the fact that crops were very short in 1912 and 1913, and also partly on account of the difficulty of large corporations to get needed financial support. Collections are accordingly slow, and large construction contracts, either for railroad work or land development, are not coming out as rapidly as was expected. Money has rapidly accumulated in the banks, however, and conditions or credit will no doubt be easier within the next few months, especially as crop conditions in all the Pacific states are exceptionally good. Local building contracts have been coming out more freely, especially for buildings of fireproof construction, and the requirements of public work will be large. Work will soon begin on the tunnel under Fort Mason, bringing the harbor railway to the exposition grounds; and a contract is about to be let for the great Twin Peaks tunnel, giving direct access to the undeveloped southwest section of the city.

The Pacific Building Materials Co., of San Francisco, has been incorporated, with a capital of \$500,000, the directors being L. D. Daddell, A. J. Dibble, A. M. Donovan, N. A. Dodge and A. C. Henning.

The California Denison Block Co. has been incorporated, with a capital stock of \$25,000, by F. W. Eastman, H. R. Kreitzer and D. A. Cannon.

Harry E. Wharton, a pioneer builder of Oakland, Cal., died March 21 at his home in that city, after several months' illness.

Pittsburgh Retailers.

Pittsburgh, Pa., April 2.—An indication of what building supply men may expect when spring weather opens is to be found in the fact that two or more towns in the Shenango Valley around the Sharon and New Castle mills are reported very short of houses. At least 1,000 dwellings of the cheaper kind are pretty sure to come up in that district this spring.

The Retail Lumber Dealers' Association of Pennsylvania since the state convention here in February has taken in many good firms. The association

is in fine shape and through its secretary, H. V. S. Lord, is going to make a hard fight for business this spring.

Carl Van der Voort, secretary of the Pittsburgh Lumbermen's Mutual Fire Insurance Company, reports that he never found the retailers of western Pennsylvania in such good spirits as now. All of them made a little money last year and all of them believe that the time has come when building must go ahead.

The Houston Brothers Company has all its plants in splendid shape to do a big spring business. Its brick plants are going to be especially busy this spring.

J. M. Porter, one of the veteran paving brick dealers of this vicinity, has been figuring on some very nice work lately and is looking for a busy summer. Prices, however, are very much to the bad.

The Pittsburgh-Buffalo Company, which was put into the hands of a receiver a few months ago, is making some progress in the adjustment of its finances and it is hoped that the company, which is one of the largest building supply businesses in this city, will be able to retain its organization and continue business right along.

The Farrell Building Company has been formed at Farrell, Pa., 40 miles north of Pittsburgh, by M. B. Longwell, Robert Caldwell and George Munro of that place. It will deal in lumber and general building supplies and has applied for a Pennsylvania charter.

The Donaldson Lumber Company is a new retail concern at Butler, Pa., lately organized by R. B. Donaldson, Donald McDonald and J. C. Norris of that place.

The building situation here will be stimulated greatly by the \$3,000,000 hotel to be known as the William Penn Tavern, which will be erected on Sixth avenue above Smithfield street by W. L. Abbott, of the Fort Pitt hotel, and other capitalists of this city. The site for the tavern was secured recently from Henry Frick and plans are now being prepared by Architects Janssen & Abbott for the big structure. Plans have also been accepted for the combination Allegheny county court house and city hall on the hump, and this project is going to stimulate a lot of building on nearby streets.

CHICAGO CHOSEN AS THE 1914 CONVENTION CITY.

At a meeting of the board of directors of the American Road Builders' Association, held at the Hotel Astor, New York, N. Y., recently, the question of the time and place for holding the annual convention and congress of the association was discussed. Upon the recommendation of the executive committee it was decided to hold the 1914 convention in Chicago early next December.

At the meeting the directors were enthusiastic over the Chicago meeting, and a monster convention and show will be planned. The details for arranging the meeting and exhibition will be in the hands of the executive committee of the association, consisting of Geo. W. Tillson, E. L. Powers and R. A. Meeker. This committee was reelected at the meeting of the board of directors. The headquarters of the American Road Builders' Association are at 150 Nassau street, New York, N. Y.

Wales & Son, of Lanark, Ill., have established a builders' supply business in that city. The concern will handle cement, gravel, brick, sewer pipe, tile, etc.

Hastings, Eskridge & Co., Seaford, Del., has been incorporated, to deal in builders' supplies, with a capital stock of \$25,000. The incorporators are as follows: J. R. Eskridge, C. E. Hastings, J. W. Hastings.

Relation of Contractor to Building Supply Man

BY J. EDWARD FULLER.*

In presenting this paper here today, please understand that I am expressing only my personal views, my own ideas of the relation of the contractor to the supply man, based on twenty-five years experience in the building business. I realize, of course, that they differ from those of some of my friends in the building line; however, the results obtained have been, in general, satisfactory. As a basis of my views it might be well to state that, while my first object after obtaining the contract for a building is to make a good profit, my second object is to do my work in such a manner that it will be not only a credit to the owner and architect, but a satisfaction and credit to my company and myself, as I am thoroughly convinced that in the long run it means more and better business than in trying to make a larger profit by using cheap material and cheap methods of construction. As a further basis of my views, I would state that my experience during the past eighteen years has been mostly in large work in Chicago, New York and in and around Boston, with short time contracts and heavy penalties for delay in completion.

My first thought in purchasing supplies for a building is, what dealers have the quality of goods that we wish to buy, and as a rule there are many of them. After these have been selected, my next thought is, what dealers can give us the "service" that we demand, and now we eliminate all but a very few. Right here let me say that the word "Service," in my opinion, is the biggest word today in the building world, the one big link that ties the supply man to the contractor, and the contractor to the architect and owner, many times regardless of price. Let us consider what this word "Service" signifies to the contractor: In the first place, can the manufacturer of brick, cement or other material furnish the supply man with the goods of such quality and quantity as may be demanded by the contractor? In the next place, is the business of the supply man of such magnitude and importance to the manufacturer that he will furnish him with the goods as required? Now, then, has the supply man sufficient facilities, such as storage yards and storage buildings, to carry in stock a reasonable amount of the material to be purchased in case of emergencies, such as late shipments, railroad delays and unforeseen demands by the contractor, etc.? Has he the organization and system to handle his deliveries with promptness? And, not the least important, does he visit the different buildings for which he is supplying the material at frequent intervals to keep in touch with the requirements, so that he may more surely be able to supply the future demands, which in building construction at the best are exceedingly variable on account of bad weather, strikes, structural changes by the architect, etc.? And last, but of great importance, are he and his salesmen sufficiently well known to the architects in the community so that he can, in cases where the quality or shape or kind of material is questioned by anyone connected with the building give his opinion and help to straighten out a matter which, if not promptly decided, will cause the builder loss from delay?

The word "service," as applied to dealers, besides the responsibilities and activities that I have already mentioned, should contain responsibilities somewhat as follows:

A dealer should constantly keep himself informed as to the progress of the manufacturers towards better materials of whatever sort he is offering the building public. He should be the first to detect and advise the building public of the falling off in quality of the manufactured article or the failure of some new material that is being advertised and offered to the public. He should also be on the alert to see that architects are informed when specifying materials which of two or more equally good materials is the cheapest, due to such causes as cheap transportation or other cause making for ease of delivery at the least cost.

An efficient dealers' organization should have in it an expert freight rate and railroad man, through whom the dealers' customers can keep in touch with the movement of shipments at all times, thereby cutting down to a minimum, delays due to slow movement of cars on the rails and overcharges by the railroads on the delivery of shipments.

The dealer who is thoroughly acquainted with the railroad business, as far as transportation of freight is concerned, can be of great value in the collection of claims, the adjustment of damages, etc.

It seems to me in considering this whole question of "service" there are too many dealers who feel that when they have placed an order entrusted to them with the factory their responsibility ceases; that they have a right to fall back on the excuse, when goods do not come as soon as expected or when they are of a quality that is below what was intended. "Well, it is not our fault, but the factory's." Such an attitude certainly tends to drive the contractor to direct dealings with the manufacturer. On the other hand, a dealer (who never admits that everything has been done that can be done to obtain the desired results until such is actually the case, and it is difficult to ever go so far) can earn the profit many times over paid to him by the community. It is the tendency of the contractor to purchase direct from manufacturers and it is up to you to prove that you are necessary to his organization.

So much for the qualifications of the word "service."

And now comes the question of prices. After eliminating all dealers not qualifying as to material and service, we ask the remaining few for quotations. After obtaining these there are several things to be considered before making our purchase. Suppose, for example, we are buying brick. We have two quotations at \$9.00 per thousand and one at \$9.25 per thousand. The brick are all of equal quality, but the one at \$9.25 per thousand we find is 5 per cent larger than either of those at \$9.00 per thousand, and as the price of the larger brick is only 3 per cent greater we purchase the brick which, while the highest in price per thousand, is the cheapest when in the wall. In purchasing material of any kind there is much to be considered beside the unit price, but I am sorry to say that I believe the majority of contractors consider the original unit cost of the material more than they do the ultimate unit cost of the material in place at the building, and I think that the dealers, and especially those who carry a high class of goods, can well afford to spend a considerable part of their time in trying to convince the contractor that ultimate cost of material in place and service in obtaining that material, are the two big economical factors in his dealings with the supply man.

I think it is very essential for the building supply man, in order to be eventually the most successful.

(Continued on Page 41.)

*Read at the recent annual convention of the New England Builders' Supply Association, at Wooster, Mass.

BUILDING PLANS

Elegant Eight-Room Brick Residence

Architect's Perspective and Floor Plans of Attractive Home with Hip Roof.

A permanent residence of the most approved, conservative, hip-roof design is presented. The building is almost square in outline, 31 feet wide by 34 feet 6 inches deep. Every square inch is made use of, and no money has been used on angles and turns and projections, which complicate the wall construction and roof construction, without returning the equivalent in added comfort to the interior.

This house, constructed of one of the modern rough texture bricks, perhaps tan color or dark brown, and laid with prominent mortar joints of a contrasting color, presents a striking and attractive picture.

The roof illustrated is rather novel; every fourth row of shingles is laid double—a trick to emphasize the horizontal lines.

From the broad front porch entrance is into a large vestibule which opens to the left into the living room, and also straight ahead into the dining room. A clothes closet to the right is provided. Back of the living room is the library or den. The kitchen occupies the fourth corner.

The dotted lines in the three main rooms indicate ornamental ceiling work in connection with the electric lighting fixtures.

The stairway in this house goes up from the inside hall. It is easily accessible from the library and from the kitchen. Those who do not care to have the best part of the house taken up by the stairway will appreciate this arrangement.

On the second floor are four large bedrooms, each with good wardrobe and closet space. One bedroom has screened sleeping porch, separated from it by glazed partition with double doors. The two front bedrooms open onto the balcony over the front porch.

The bathroom is on this floor, directly over the kitchen and first floor toilet, thus keeping all plumbing fixtures in line—an economy point to be considered.

The Bond in Silica Bricks.

BY E. L. RAES.

It is well known that the highly refractory bricks used in the construction of the domes of steel furnaces are composed chiefly of silica to which a small percentage of bond is added in order to bind the particles of silica together. The silica itself constitutes 95 to 99 per cent of the whole brick, so that the proportion of added bond is necessarily very small, and great care is needed to mix it thoroughly so as to obtain a brick of uniform strength.

The bond generally employed is lime, which is added in the form of a milk by mixing it with water and passing the thick fluid through a fine sieve so as to strain out the coarser particles. In this "milk" the greater part of the lime is in a suspended state which is far from ideal, but the amount of lime

which will dissolve completely in the limited amount of water which can be used is far too small to meet the requirements of the case. If a clear solution of lime could be used which was sufficiently strong for all the lime needed to be added in this form, it would result in the production of better bricks, and of those which were stronger and more uniform. As it is, the lime which is dissolved behaves in a

amount of water, they will stand well enough in the kiln. During the burning the chloride decomposes, leaving free lime which rapidly attacks the silica, and makes an even better bond than when milk of lime is used. One reason for this is the much smaller particles of lime and their better distribution, but calcium chloride has of itself a specially strong action on silica, and converts it into a soluble silicate at a dull red heat, and at a temperature far below the melting point of the product.

Another useful bond is alum, which also dissolves in water to a clear solution. The use of alum equivalent to five per cent of the weight of the



AN ATTRACTIVE RESIDENCE OF BRICK.

rational manner, but that which is in suspension tends to be badly distributed, and to collect in small groups instead of being distributed uniformly throughout the brick.

As lime will not dissolve in water in a sufficient proportion to yield a solution of the required strength, it is clear that any improvement must be looked for by the use of another compound containing the essential constituents of lime or one which will have a similar binding power. Of the various substances available, one of the most simple and obvious is calcium chloride, the use of which was first patented in Germany in 1873. This substance is obtained as a by-product, and is comparatively cheap, though somewhat more expensive than lime. It may be made by dissolving lime in hydrochloric acid, but no manufacturer of silica bricks would make it for himself. It behaves in a precisely similar manner to lime as far as its bonding power is concerned, but it dissolves perfectly in cold water, so that a clear solution of it can be used. Unfortunately, it has one disadvantage in that it is so greedy for water it is difficult to dry the bricks when calcium chloride is used, and the floors must be made much hotter than usual, or the bricks will be sticky and weak in the kiln. If once they are dried, however, and put direct into the kiln before they have had time to absorb any appreciable

bricks was first patented in Germany in 1881, and it has been, since then, patented in Great Britain. It acts differently from lime and forms an aluminosilicate of uncertain composition, but apparently more infusible than the lime bond. It is added in the same manner as the milk of lime, and no difference is made in the manufacture of the bricks. Tests made of bricks from different works in which alum is used differ greatly, and show that much improvement might be made in some cases by a further study of the subject; in some works the use of alum has been highly successful, in others it has been a failure.

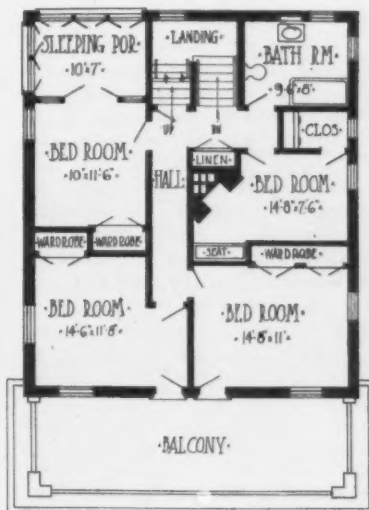
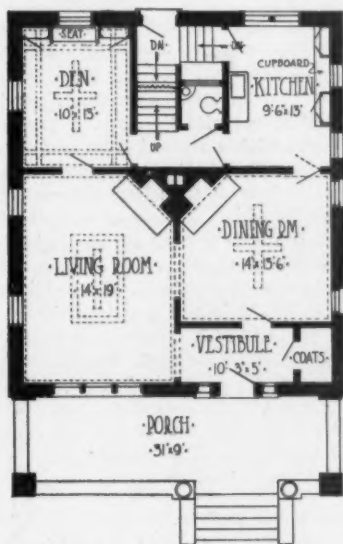
Similar to alum is the addition of five to ten per cent of fireclay as a bond. This makes the moulding of the bricks much easier, but it reduces the melting points of the bricks to a serious extent, and may easily make them of only second quality in this respect. On the other hand, by enabling the bricks to be better made, it gives them a closer and more even surface, so that they may stand the corrosive action of the gases, etc., quite as well as more open bricks with a greater resistance to heat. The use of only two per cent of clay and an equal proportion of lime is sometimes better than the use of lime alone, as the lime attacks the fine particles of clay before it attacks the silica, and thus forms the bond at a lower temperature

than would otherwise be the case. Hence, if the burning is finished at the equal temperature, a stronger brick will be obtained.

Great care is necessary not to use too much clay, as even ten per cent will materially reduce the melting point of the bricks, and if the clay and some of the silica are both in fine powder the lowering of the heat resistance may be very serious.

The chief use of the bond appears to be in the handling of the paste, and to enable the bricks to be set in the kiln. After the bricks have been burned they appear to have enough bond in the shape of unavoidable impurities, and the added bond is then a source of weakness rather than strength. With this idea in mind, some of the manufacturers of silica bricks use bonds which will burn out in the kiln, such as molasses, dextrin or other glutinous substances. These are dissolved in water, and added to the silica and water during the grinding, and as the bricks dry they harden to a mass which can be readily handled. In the kiln, the bond burns away, but not before the bricks have gained sufficient strength from the impurities they contain.

Water glass has also been used as a bond, but its great activity as a flux is against it for refractory bricks. In the earlier stages it is excellent,



but the bricks in which it is used have a lower melting point than those made with lime; as this bond is characteristic of the use of soda glass it cannot be avoided so long as this bond is employed. For second grade bricks, the use of water glass may be recommended, but for the reason given it is not suitable in bricks which are required to have the highest possible heat resistance.

There is a large opening for a bond with all the advantages of lime combined with ready solubility in water, and there is even more demand for a bond which will not reduce the melting point of the silica to which it is added. This last requirement appears to be almost impossible of attainment so far as a strong bond is concerned, and the glasses are necessarily of lower melting point than the comparatively infusible silica.

Weaver Building & Supply Co., Hudson, N. Y., has been incorporated with a capital stock of \$50,000 by Fred Christiana, Sturt Shaffer and L. H. Weaver.

"The Diesel Engine,"—1913 catalog of the Busch-Sulzer Bros.-Diesel Engine Co., St. Louis—contains an historical sketch of the development of the Diesel engine idea, both in this country and abroad. The book is beautifully printed and illustrated and should be in the possession of every person and concern interested in efficient power machinery.

Builders' Hardware

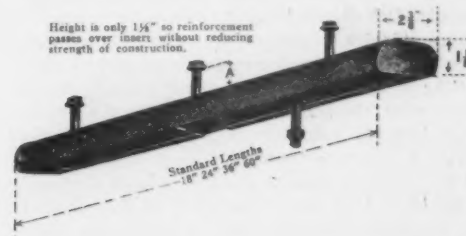
It is an understood fact that every article of "builders' hardware" cannot profitably be carried in stock by a dealer in general building materials.



However, as some of these are of interest to many dealers, various articles will be discussed in this page which may prove of interest to the building supply trade, even though it may not seem advisable to carry them in stock.

The accompanying illustrations show two types of coal chutes which many dealers find a profitable side line. Coal chutes can also be classified under the heading of builders' hardware and are often a necessity for the dealer's stock in certain localities.

The profit on the regular lines of building material is often very small and the staple articles for construction, the selling of which gives the building material dealer his name, are usually sold on close margin. ROCK PRODUCTS AND BUILDING MATERIALS believes that a wider profit should come to the dealers on all staple products for construction and has advocated better prices for the dealer in its editorial pages in years past. But until this is a reality, the dealer must not neglect his specialty department, which besides the regular specialties such as metal lath, wall ties, etc., can include builders' hardware such as door hangers, coal chutes and other similar products. The margin of profit to the dealer has always been very good in the specialty lines and every dealer who carries a regular stock of specialties has never regretted



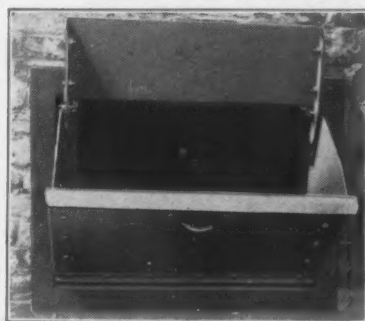
his outlay. By testing out the trade and by direct requests, many dealers find that the necessity for certain lines of builders' hardware is imperative. The profit is at a good margin, the materials can be purchased from reliable manufacturers. Many dealers are now doing this, and many more could profitably do the same.

TRADE LITERATURE.

H. L. Park, of Reading, Mass., has written an interesting and instructive little booklet entitled "The Latest Word on Step Making." This work is an accurate review of concrete step making by the Park method and is very instructive.

"Through the Home of Tapestry Brick" is the title of booklet 28 issued by Fiske & Co., Inc., 25 Arch street, Boston, and Arena building New York. The author is Arthur G. Byne. The booklet describes in comprehensive detail the new home of "Tapestry" brick on the top floor of the Arena building, No. 40 West 32d street, New York City. Every feature of the new quarters is illustrated in beautiful three-color process printing. Fiske & Co. have also issued booklet 29, entitled "Tapestry Brick Tilework for Floors and Interior Walls. This booklet describes and illustrates the application of "Tapestry" brick to a number of beautiful buildings in New York and other cities.

Volume 1, Number 1, of "The Ceresit Waterproofing" has been issued, bearing date of March, 1914. This publication is a monthly pamphlet of sales talks and live suggestions for Ceresit dealers, published in a spirit of co-operation by the Ceresit Waterproofing Co., 110 S. Dearborn street, Chicago, Ill., and will be sent to interested parties.



systems, etc. They are imbedded in the concrete during construction, saving expensive drilling into the concrete after completion of work. Only the narrow slot, flush with the concrete, is seen in the completed work. The head of the bolt for attaching the shafting is slipped into the square opening and moved along the slot to its correct location. This slot allows a wide variation in position. Special washers are furnished with the insert to prevent the bolt from turning in the slot.

Roofing Materials

Asphalt Roofing.

The Patent Vulcanite Roofing Co., Chicago, Ill., in speaking of business conditions for the coming season, report that the sale of their products is growing rapidly and that they are expecting a big year for 1914. Concerning the asphalt roofing, the company has the following to say:

"The asphalt roofing as manufactured today has many talking points for the dealer. If this roofing is carried in stock that has a reputation behind it, it is welcomed by architects, home builders and contractors as the logical substitute for the declining wood shingle. With these roofings the home builder can be reached who doesn't think the regular sheet roofings are decorative enough, the man who either spends considerable money for tiles or slate, or else compromises by using a wood shingle because he doesn't know of anything better.

"If one house in a town is roofed with asphalt shingles of good manufacture the tide is started towards the dealer who carries them. Then the contrast between the bright, trim-looking house, covered with attractively colored roofing, and the surrounding buildings, roofed with dark, discolored wooden shingles, is so striking, so convincing, that an active demand for this roofing is at once created.

"The outward appearance of one's house should reflect what the home itself means to the owner, for a hundred neighbors and passers-by see the outside to one who becomes a guest within. It is not necessarily expensive to build a home that will be distinctive. Some of the exterior finishes that add the most distinction to a structure are lower in price than less attractive materials.

"The older forms of roofing are gradually being superseded. Wood shingles are becoming more expensive, while the quality is lowering, and a general awakening in regard to their danger from fire is forming a strong prejudice against their use. The old-style tin roofs are almost impossible to obtain now, and the modern 'made-to-sell' kind,

with its very thin coating, will not last like the hand-made tin roofs of 30 years ago. These facts explain the remarkable demand for asphalt roofing.

Asphalt shingles may be used on any roof on which a wood shingle could be used; that is, any sloping roof. The tops of porches, bay windows and dormer windows may be covered as easily as the main roof.

The Swiss or English method of using panelled walls and gable ends is gaining rapid headway in this country. This so-called half-timber type is an admirable feature of most homes upon which it is used. The asphalt roofing in any of the numerous finishes may be used in the place of "pebble-dash," and is considered handsome in appearance and easy to apply. Colorings may be selected which harmonize with the general color scheme of the house, and either rough or smooth finish may be used, as may seem most desirable.

BIG COMPANIES MERGE.

One of the largest consolidations ever effected in the manufacturing industry in the state of Iowa was announced last month in the merger of the Acme Roofing Tile Co., the Goodman-McCormick Co. and the Des Moines Clay Mfg. Co. The new concern will be known as the Des Moines Clay Co. It will be incorporated for \$400,000. The consolidation involves property worth nearly \$1,000,000.

The officers of the new concern are: F. C. Hubbell, president; Leon Goodman, vice president and general manager; I. M. Earl, secretary; Charles C. McCormick, treasurer and sales manager; Charles Stolp, factory manager. The directors are F. C. Hubbell, I. M. Earl, Charles C. McCormick, Charles Stolp, George E. Winter, E. A. Morling and Leon Goodman. The new company embraces in its officers and directory board practically all the officers of the three concerns that have been consolidated. The Des Moines Clay Co. will manufacture, wholesale, retail and job every kind of material

used in modern construction except lumber. It will be one of the largest roofing factories in the United States and the only prominent tile factory in Iowa. Its production of face brick will be the largest in Iowa.

A NEW ASPHALT SHINGLE IDEA.

The Winthrop Asphalt Shingle Company, 10 Sixty-first street, Argo, Ill., are manufacturing a product known as Winthrop Tapered Asphalt Shingles. This product, which embodies a new idea, has met with especial favor among architects, builders' supply dealers and building owners. The shingle is made tapering with a thick edge at the butt where the hardest wear comes, thus giving to the shingle an extraordinarily long life, as well as decreasing the dead weight of the roof. They are laid with ordinary shingle nails, their regular size permitting them to be laid with greater rapidity. The manufacturers of this product are sending to the trade a booklet which describes in detail the manufacture of this shingle, with illustrations of its application to numerous buildings and citing its many good qualities. The booklet also tells how to test these shingles, giving reasons why it will outlast the rest of the house.

NEPONSET SHINGLES.

Bird & Son, East Walpole, Mass., are the manufacturers of builders' specialties, particularly in the roofing material line, and a product recently developed with a marked degree of success is the "Neponset Shingle." It is stated that this shingle, which is made from Neponset roofing, is not by any means merely a piece of ready-roofing. Each shingle is carefully built so that it is thick at one end and thin at the other and on the roof lies just like a wooden shingle. Each shingle is of uniform size 12 3/4 inches long by 8 inches wide, and a slot is cut in each shingle so as to give a decided shingle effect to the roof. One of the noteworthy features of this shingle is that only 452 are required to cover 100 square feet of surface, and on account of this fact these can be laid more quickly than wooden shingles. The manufacturers will furnish samples and particulars on request.

The Elaborated Ready Roofing Co. of Chicago has decided to establish a branch house in Davenport, Iowa, at 117-121 Ripley street, according to Louis H. Schmidt, manager of the Chicago firm.

The Asbestos Protected Metal Co., Beaver Falls, Pa., is marketing a new form of prepared roofing which has been named "Aegisroll." The body or base of this roofing is wool felt, impregnated by waterproofings and completely enveloped in a coating of asphalt compounds.

The Pinegrove Vitrified Brick Co., of Reading, Pa., is about to start operations. Several small pieces of machinery are yet to be installed and a number of needed repairs have been made. The contract for digging the shale has been given to Charles Hummel and Howard Hughes.

Shelbyville, Ill., Feb. 17, 1914.

Editor, ROCK PRODUCTS AND BUILDING MATERIALS:

Enclosed find check for \$1.00, renewing my subscription for another year. Am highly pleased with your magazine and don't want to be without it.

Yours very truly,

O. W. HARRIS.

Willoughby, Ohio., Feb. 24, 1914.

Editor, ROCK PRODUCTS AND BUILDING MATERIALS:

"Here's the best dollar I ever spent. Send along the good paper."

Yours truly,

American Clay Machinery Co.,

W. J. Carmichael.



BUILDINGS WITH PATENT VULCANITE ROOFING.

CEMENT

LEHIGH PURCHASES NEW CASTLE PLANT.

All the real estate, personal property, including stores, of the New Castle Portland Cement Co., located at New Castle, Lawrence county, Pa., have been purchased by the Lehigh Portland Cement Co. They have also purchased the New Castle & Butler Railway Co., an industrial line having connections with various industries at New Castle. The mill of the New Castle Portland Cement Co. has four kilns with an annual capacity of 800,000 barrels, and the real estate consists of 1,000 acres, containing shale and limestone. The Lehigh company has two plants at New Castle which have been in operation for several years. They have an annual capacity of 200,000 barrels. This additional plant, therefore, will give the Lehigh company a capacity of 1,000,000 barrels.

With its new purchase the Lehigh Portland is now the owner of twelve mills. Five of these, at West Coplay, Ormrod and Fogelsville, are in Lehigh county, three at New Castle, two at Mitchell, Ind., one at Mason City, Ia., and one at Metaline Falls, state of Washington. The total annual capacity of the company is 12,000,000 barrels.

The deal was authorized several weeks ago by the stockholders of the New Castle Co. and is said to involve \$1,200,000.

The plant of the Crescent Portland Cement Co., at Wampum, Pa., which was closed down for several days to make necessary repairs, has resumed operation and it is expected that it will run steadily for some time.

Tidewater Portland Cement Co., with headquarters at Baltimore, Md., and with a plant at Union Bridge, now has transportation facilities over the Central Railroad of Maryland, which has just constructed a new line to its plant. The new road, however, will be operated as a part of the Pennsylvania system and will maintain a regular passenger and freight service.

According to the apportionment plan outlined in the report of Receiver Otto Hill of the defunct Hawkeye Portland Cement Co., which went into bankruptcy some six years ago, the stockholders are to receive a dividend of 20 cents on the dollar. Of the \$395,800 which the stockholders paid in for preferred stock, \$79,160 will be paid them. The Hawkeye Portland Cement Co. had its headquarters at Harvey, Iowa. It was incorporated in West Virginia and for a time enjoyed a flourishing business.

Coplay Cement Mfg. Co., Coplay, Pa., suffered a severe loss by fire the latter part of March, when a large frame building used for storing cement bags, etc., was destroyed. The loss will total approximately \$40,000, which does not include three boxcars loaded with merchandise, which were also destroyed. It was stated that about 1,000,000 bags were burned and that a loss of \$5,000 will occur to the National Bag Co., of Easton, who had the contract for cleaning the bags. The building was a part of Old Mill A, formerly used as a packing house, and for the past several years used as a bag house. The Coplay Cement Co. is having its entire plant electrically equipped, the Lehigh Coal & Navigation Co. having extended its lines supported on high structural steel towers into the works. Individual motors are being installed on the various units of machinery.

Kosmos Portland Cement Co., of West Point, Ky., has resumed operations with a full working force after a temporary shutdown for repairs.

The Knickerbocker Portland Cement Co. has resumed operations at Hudson, N. Y., after a shutdown of about ten days for repairs, installing new machinery and general overhauling of the plant.

The Southwestern Portland Cement Co., of El Paso, Texas, has been awarded the contract by the Reclamation Service for 21,000 barrels of Portland cement to be used on the distribution system of the Rio Grande irrigation project.

The Dewey Portland Cement Co., of Dewey, Okla., has been awarded the contract by the Reclamation Service for furnishing 15,000 barrels of Portland cement for use on the Belle Fourche, S. D., and Carlsbad and Hondo, N. M., irrigation projects.

The Lehigh Portland Cement Co., of Chicago, Ill., has been awarded the contract by the Secretary of the Interior for 13,000 barrels of Portland cement to be used on the Ft. Peck irrigation project and the distribution system of the Milk river project in Montana.

United States Portland Cement Co., of Denver, Colo., has been awarded the contract for 12,000 barrels of Portland cement to be used by the government on the irrigation projects at Uncompahgre and Grand Valley. The cement will be furnished from the plant at Concrete, Colo.

T. Henry Dumary, president of the Helderberg Cement Co., died in Albany, N. Y., March 16th. Mr. Dumary was one of the most prominent cement manufacturers of the country and was greatly esteemed in the cement industry. His demise will be a distinct shock to those who knew him and associated with him.

The Colorado Portland Cement Co., of Denver, Colo., has been awarded the contract for 140,000 barrels to be used on the Uncompahgre and Grand Valley projects in Colorado, on the Rio Grande project at Elephant Butte Dam, and on the North Platte project in Nebraska. The cement will be delivered f. o. b. cars at Portland, Colo.

Owing to the late winter, repairs to the plant of the Lehigh Portland Cement Co., near Allenton, Pa., have been delayed until quite recently, when all the mills except Mill F, at Ormrod, will be temporarily closed down for the purpose of making annual alterations. Heretofore the company has followed a policy of gradually shutting down during the winter months, but one of its officials recently stated that it is expected to be in running order again at normal capacity within three or four weeks. Shipments are seasonably quiet.

Cincinnati, Ohio, April 2.—The Superior Portland Cement Co., through its receiver, Guy W. Mallon, filed a first partial report a few days ago as to the conditions of the affairs of that concern. The list showed a cash balance in the bank of over \$7,000; the total receipts being \$73,180.13, cash disbursements amounting to \$65,854.69. Receiver Mallon stated that nearly \$8,000 had been expended for repairing the mill and putting it in condition for operation and that repairs have not yet been completed. He reports that so far he has been able to discount all bills.

NEW CEMENT PLANT IN TEXAS.

An option has been secured on 218 acres of land three miles north of San Antonio at the intersection of the Vance Jackson road and the S. A. & A. P. railroad and it is said the ground will be the site of a large cement plant soon to be erected. The proposition, which will represent an expenditure of more than \$100,000, is being fostered by a number of prominent San Antonio contractors and builders known as the Bexar Portland Cement Co.

According to plans that are now well under way, the plant will have a daily output of 1,200 barrels, and will burn two 10 x 150 feet kilns, making it one of the largest of its kind in the state. The heavy demand for cement in San Antonio within the last few months has taxed the capacity of the manufacturers already in operation here, and the need of an additional plant is considered urgent.

All of the stock in the operating company is being taken in San Antonio and an application for a charter with \$250,000 capitalization, will be applied for to the state within the near future. Actual construction of the plant will begin within the next thirty days, it is claimed.

The Northwestern Portland Cement Co., Bellingham, Wash., has closed a deal for the purchase of 80 acres of lime rock north of Kendall, Wash.

The Morris Construction Co., of Wincola, Pa., has the contract for steam shovel work at Annville, Pa., for the Whithall Cement Manufacturing Co.

The Crescent Portland Cement Co., whose plant at Wampum, Pa., was closed down for repairs, has resumed operations and it is said that the plant will be run steadily for some time.

Mill No. 2 of the Lehigh Portland Cement Co., at Mitchell, Ind., which was closed down a few weeks ago for repairs, has resumed operations with a full force. Mill No. 1 will also be re-opened within a few days.

The city of San Antonio, Tex., has closed a contract with the Alamo Cement Co. for from 36,000 to 90,000 barrels of cement at \$1.60 per barrel, to be used for municipal purposes at the rate of from 3,000 to 7,500 barrels per month. The city has decided to buy its own paving materials, in order to reduce the cost of the extensive improvement work planned.

Work is being aggressively pushed on the Duluth plant of the Universal Portland Cement Co. The concrete tile sewer system is now finished. The machine shop will soon have all tools in place, and work will be started on the reinforced concrete stock house as soon as weather conditions permit concreting. The latter is of the circular bin type of design, consisting of 26 cylinders 30 feet in diameter by 50 feet in height.

The Nebraska Portland Cement Co.'s main plant at Superior, Neb., is in course of construction and will start operation probably about June 25th. Bids have been awarded for all of the buildings. The officers of this company are: President, E. E. Bruce; vice president, B. D. Sherwood; secretary, H. G. Calkins; treasurer, James Richardson, all of Omaha. The Nebraska company has purchased an additional 80 acres of shale land at Pilger and will have the use of it for 20 years.

Cement Manufacturing Changes in England.

From Our Own Correspondent.

London, March 25, 1914.—Many important alterations are being made in Portland cement machinery in this country. Very many old plants have been in the last year or two consigned to the rubbish heap and certainly within the last ten years the whole process of manufacturing Portland cement here has been revolutionized. A very good example of the most recent change is given in the works of the Tunnel Cement Company, of West Thurrock, England.

This company was originally established in 1874 and has recently been reconstructed and equipped with entirely new machinery, supplied, curiously enough, by a Copenhagen, Denmark, house. The original works, kilns and all, have disappeared and the only trace of the old building is a part of the former warehouse. The works may be now looked upon as being typical of the modern methods introduced into this branch of manufacture. The most remarkable feature is the great length of the rotary kiln and the extreme uniformity of the quality of the cement, consequent upon the employment of single units of the largest size.

The chalk, brought in trucks from a neighboring quarry, and the clay, also loaded in trucks, are conveyed to the edge of the wash mill, and after being weighed are tipped by hydraulic pressure, in truckloads at a time, into the wash mill, capable of dealing with 40 tons of raw material an hour. The chalk and clay are reduced to slip or "slurry" by revolving stirrers of the dragharrow type, and the slip is pumped up to the separators, where the coarse particles are removed. This is effected by centrifugal wringers, the sides of which are lined with wire gauze that permits the fine particles in suspension to pass through, but retains the coarser matters for return to the wash mill. The roughly screened slurry, after being further ground in a tube mill, is run into a series of tanks, provided with stirrers, in order to prevent deposition, after which it is lifted by a pump to the top of the kiln building. This is a fine hall, about 240 ft. in length by 55 ft. in width, which will eventually contain two rotary kilns with clinker cooling cylinders and coal grinding plant.

The rotary kiln, into the upper end of which the slurry is introduced at the rate of about 45 gallons a minute, is inclined at an angle of 1 in 25 with the horizontal and is supported on five sets of friction rollers, spaced equidistant. The kiln, which is 210 ft. in length by 8 ft. in diameter, increased to 9 ft. near the firing end, is driven by powerful gearing at the center and revolves at the rate of one complete turn in 65 seconds. It consists of a tube, formed of mild steel plates rivetted together, and lined throughout with firebrick. The fuel, which is Newcastle coal ground to a fine powder (about 15 per cent residuum on the 180 mesh sieve), is blown into the kiln by a high pressure fan, and the air needed for combustion, previously heated by being passed over the red hot clinker quitting the kiln, is also blown in by a fan. This kiln, when in normal work, is capable of yielding seven one-half tons of clinkers an hour, with a fuel consumption equal to 28 per cent of the weight of the cement. The coal is ground in a "kominor," or ball mill, and is finished in a tube mill, whence it is raised into a feeding hopper.

The clinker, as it issues from the cooling cylinder, placed beneath the rotary kiln, is lifted by a conveyor into a storage-hopper, where it is removed in iron trucks and wheeled by hand on a narrow-gauge railway to the mill house. The kominor into which it is tipped along with a measured quantity of gypsum, to delay the setting time of the cement,

will turn out 10 tons of finely crushed clinker an hour, and the ground material from the kominor is conveyed to the tube mill, 6 ft. 6 in. in diameter and 24 ft. in length, in which the cement is ground to an extremely fine powder. The specified fineness of grinding is 12 per cent residue on the 180 mesh sieve. The ground cement issuing from the tube mill is transferred by a spiral screw conveyor to an endless rubber belt, 170 ft. in length, leading to the silos, four in number, 30 ft. in diameter and 50 ft. in height, with a united capacity of 6,400 tons of cement.

The use of the "Exilor" machines for sack filling constitutes a marked improvement on the old-fashioned plan of working. The empty sacks, attached by clips to the orifice of a tube leading from the silo, is shut into an airtight chamber, formed in two sections, and in the act of closing the door an air exhaust is started. Owing to the vacuum created a stream of cement from the silo is drawn through the tube into the sack. The sack is hung at one extremity of the beam of a weighing machine, in the scalepan of which is the exact weight of a filled sack. In 10 or 12 seconds the requisite quantity of cement has been drawn into the sack, which then tilts the beam, thereby opening the air-valve; this breaks the vacuum and stops the flow of cement. The opening of the door to remove the sack enables a small fan to carry away the dust from the mouth of the sack and the door is ready to be swung back and closed against the other chamber of the Exilor, in which another sack has in the meantime been fixed in readiness for filling. The door is hinged on the center line, so as to be capable of being closed against each section of the chamber in turn. A gang of three expert workmen can fill and wheel away 150 sacks of cement in the hour, with the precise weight required in every sack. A small air pump, driven by motor, is all the power needed to convey the cement from the silo into the sack, and the vacuum created is about 15 in. of mercury.

The power throughout the works is generated electrically and is conveyed by cables to the various machines. The powerhouse is a handsome building, containing ample space for additional plant. At present a steam turbine driving a powerful dynamo, furnishing three-phase current at 50 periods per second, is the main source of supply, but there is a 250 h.p. gas engine to serve as a stand-by. The total weight of the turbine and dynamo is 27 tons, whereas the fly-wheel alone of a reciprocating engine to furnish the same amount of power was estimated to weigh over 50 tons. Steam is supplied by two Steinmuller boilers, each of 1,000 h.p., with chain grate stokers.

IOLA COMPANY REORGANIZED.

Announcement has recently been made that the Iola Portland Cement Co., of Iola, Kans., has been reorganized and returned to the control of the stockholders. It is stated that a new plant which will cost approximately \$1,000,000 will be constructed in the near future with a capacity of 2,000 barrels a day and will employ 300 men. The new officers and directors of the Iola company are as follows: H. Struckmann, Kansas City, president; E. H. Ryan, Davenport, Ia., vice president and treasurer; J. A. Wheelock, Iola, secretary; executive committee, G. Pantaleoni, St. Louis, Mo.; E. H. Ryan and Nathaniel French, Davenport, Iowa; R. A. Long, J. J. Heim, J. A. Bayles and H. Struckmann, Kansas City, Mo.

M. A. Robinson, of Seattle, who is said to have connections with a \$40,000,000 syndicate of English capitalists, recently visited the Holliday cement deposits south of Livingston, Mont. If a satisfactory price for the property can be arranged the property may be purchased.

CANADA CEMENT COMPANY HOLDS ANNUAL MEETING.

The annual meeting the shareholders of the Canada Cement Co., Ltd., occurred at Montreal a few days ago. Senator W. E. Edward, president of the company, issued a report setting forth the condition of the affairs of the company, which was found to be satisfactory. J. M. Kilbourne, vice-president, spoke of the rapid growth of the country and the progress which has been made. The Canada Cement Co. occupies a peculiar position in the Dominion in that it is charged very largely with the supplying of the cement for that country at a price within the reach of every one who wants to use it, which the company has done as far as is consistent with a safe carrying on of its business.

The following officers and directors were elected: Hon. W. C. Edwards, president, Ottawa; J. M. Kilbourne, vice president, Owen Sound; D. Murphy, Ottawa; William McMaster, Montreal; Hon. Robt. MacKay, W. H. E. Bravender, Los Angeles; R. W. Kelly, New York; W. R. Warren, New York; C. C. Ballantyne, F. P. Jones, E. W. Cox, Toronto; Farquhar Robertson, George E. Drummond, H. L. Double, E. M. Young.

CEMENT MAKING CONDITIONS IN ARIZONA.

The stockholders of the Arizona Portland Cement Co. met at Phoenix, Ariz., a few days ago for a general discussion of the affairs of the company. When interviewed recently Secretary Cruse of the company said: "Every person who really desires this industry to succeed should lend his influence to see that the cost of making cement here is lessened. We should not be obliged to pay more than 20 cents per barrel for power alone; this would bring a revenue of \$80 per day, or \$2,000 per month of 25 days, to the Water Users' Association. The minimum charge for power should not exceed \$1,000 per month; this would help us some in case of accident or conditions that cannot be foreseen.

"Some of the officers of the Water Users' Association seem to think that the association has already done well enough; if these opponents to this needed industry had their money tied up in the cement plant I am quite sure they would see it differently; the price of electric power here affords no encouragement to manufacturers of any kind.

"The average charge to us should not exceed 11.4 cents per kw; this would enable us to have sufficient electric power to make one barrel of cement at a cost of about 22 cents; the total cost of making a barrel of cement in Salt river valley would then be about \$1.55, probably not more than \$1.45 or \$1.50 when the mill runs regularly at full capacity. The cement is worth at the mill net from \$1.90 to \$2.00 per barrel. I have closed down the mill for repairs and improvements and must refuse to start it again until it is made thoroughly efficient as to capacity of 400 barrels per day; the cost to make cement here has been too great; I have already improved some of these unfavorable conditions—others must be improved to enable this industry to live."

CEMENT RATES SUSPENDED.

Washington, March 26.—Increases in freight rates on cement ranging from one to two cents a hundred pounds, proposed by railroads operating throughout the Middle West and Northwest, were suspended today by the Interstate Commerce Commission until July 30. The proposed advances average about 15 per cent.

The Ogden Portland Cement Co., located near Brigham City, Utah, has resumed operations after a shutdown of about two weeks for annual repairs. An increased working force has been employed to rush the work.

CONCRETE

Concrete Poles Coming.

"Although reinforced concrete poles have been the subject of experiment from time to time for a great many years, it is comparatively recently," says a writer in the *Electrical World*, "that they have been employed or even seriously considered. The high and constantly increasing cost of wooden poles, their comparatively short life, with consequent prospective renewal at greater expense, as well as the demand of the public for the beautification of city streets, render the consideration of concrete pole construction desirable for overhead systems.

"A number of successful installations of concrete poles have been made in the last five or six years on the continent and in Europe. The largest pole installation at present is that of 25,000 concrete poles set up in connection with the municipal street lighting and general light and power distribution of the hydroelectric system in Toronto.

"The appearance of an overhead installation can be greatly improved by using a pole of neat and uniform construction, such as is obtainable by the use of concrete. With a suitable lighting system and arrangement for overhead a pleasing and ornamental effect can be obtained at substantially the same cost as when wooden poles are used, and there is also the prospective saving in maintenance expense."

A Concrete Town.

A small city of concrete houses is being poured at Midland, Pa., by the Pittsburgh Crucible Steel Co. for its employees. The houses, two stories in height, are of four rooms each, and cost complete about \$1,100 each. This includes a charge of \$25 to cover the expense of the forms, which represent an expenditure of about \$3,000.

Clean looking, with white exterior, the houses are plain but far from unattractive in appearance. Across the front of each home extends a raised concrete porch, from which three steps lead to the lawn. The front door opens directly into the living room, 15 by 16½ feet, from which is taken the space which is required for a three-foot stairway leading to the upper floor. Back of the living room is a kitchen 15 by 15½ feet. The dividing partition is of solid concrete and contains the chimney, which extends through the roof.

In pouring the house the steel forms for the first floor are set, and that part of the structure is cast as a monolith. When the mixture has set to sufficient strength the molds are removed and used in pouring the second story, which contains two rooms, corresponding in size to those on the lower floor.

PROPOSED CONSOLIDATION OF IMPORTANCE

A plan to merge the interests of the Hobbs Concrete Block Manufacturing Co. with the Adrian Steel Casting Co., both of Adrian, Mich., is being considered.

The proposal to consolidate the Hobbs company with the Adrian corporation has come about as the result of close business relationship existing between the companies for some time prior to last fall, when the Hobbs plant was brought to Adrian largely for the purpose of being in closer touch with the steel casting company, which was turning out its parts.

While the plan does not contemplate an immedi-

ate combining in the manufacturing plants, it is expected that block manufacture would ultimately be housed on the grounds now owned by the casting company, which holds sufficient land for the purpose. The manufacture of the block machines would, in case consolidation is effected, be carried on by the new management, with Mr. Hobbs in charge of the sales and field work.

A NEAT CONCRETE GARAGE.

The accompanying illustration shows a cheap and artistic concrete garage at Charles City, Iowa. This garage was built of cement blocks, with cement floor, sills and lintels. It has a reinforced cement roof and is 18 feet wide by 22 feet long, measuring 14 feet 8 inches in height.

It is stated that the mixture of the cement roof



PRACTICAL GARAGE OF CEMENT BLOCKS.

was three of gravel to one of cement, with corrugated bars for reinforcement, and it was given a wash of neat cement and waterproofing. This concrete garage was built by contract, the cost being \$400 complete, and it is a most satisfactory and artistic concrete structure for this service.

Contract for the Concrete Silo Co., Bloomfield, Ind., has been let to J. W. Lee. The company will manufacture concrete silos.

The M. L. Rice cement tile works, Monon, Ind., which was burned out early in January, is being rebuilt, according to information received in Indianapolis.

Concrete Flooring Co., Chicago, Ill., has been incorporated; capital \$5,000; concrete and cement products; William S. Pace, Hermann Kollmorgen and Adolph Gorge.

Perkins Cement Post and Mold Manufacturing Company, North Manchester, Ind.; capital, \$8,000; fence post manufacturer; directors, Thomas J. John, James S. Peden, William M. Perkins and others.

Workman, Mees & Co., Lyons, Ind., has been organized to manufacture plastic block molds for all kinds of concrete work. The company is composed of Ed Workman, J. B. Workman, James Wells, Elias Mees, Curt Workman and others.

The Oklahoma Cement Stave Co. is contemplating the erection of a silo factory at Wagoner, Okla. T. C. Harrill and H. B. Raines are interested in the proposed new plant. About 75 men will be employed. It will be one of the largest plants in the world of its kind.

The Tishimingo Tie & Stone Co., composed of Mississippi men, has incorporated in Indiana to manufacture concrete railroad ties and building material. The capital stock is given as \$2,000,000. The directors are given as A. E. Robinson, J. T. Whitener, M. W. Cozart, G. R. Edwards, W. M. Burns, C. L. Montroy and Rufus Jones.

Milton Cement Products Co., Milton, Pa., is planning improvements to its concrete block plant.

Central Texas Granitoid Co., Waco, Texas, incorporated, capital \$12,000; J. C. Gage, president and manager; Neal Dubberly, vice president; Geo. P. Turner, secretary-treasurer, succeeds Central Texas Monument Co.; manufactures stone and artificial stone products, etc.

Joseph Cathrinder, of Brenham, Tex., has secured a patent on a machine for manufacturing concrete blocks that are used in circular work, such as the body of cisterns and for wall curbing. It is designed to remedy several serious drawbacks formerly experienced in building concrete cisterns.

Bishopville (S. C.) Concrete Company was commissioned a few days ago with a proposed capital stock of \$2,000 with the right to increase it to \$3,000. The company will manufacture concrete tile, concrete blocks and other concrete products. The petitioners were William M. Reid, L. H. Jennings, Thomas G. McLeod, W. R. Scarborough and S. L. Austin.

O. R. Savage, formerly of Stuart, Iowa, moved to Des Moines recently to take charge of the distribution in Iowa and northern Missouri for the Cement Stave Silo Co. He will maintain headquarters in the Iowa Loan and Trust Co. building. The Cement Stave Silo Co. has a number of plants in the country. Six of these, located in Iowa, will be under Mr. Savage's supervision.

The increased business of the Western branch of the C. F. Massey Co., established on the Great Northern just east of Spokane, Wash., calls for a tripling of its plant this spring, according to Manager L. C. Bankson. Mr. Bankson also asserts that the Spokane plant will be headquarters for the Western business, with the other main office of the company in New York. The company is contemplating the establishment of a factory in California for the manufacture of their concrete products, and also one in British Columbia, both to be directed from Spokane.

The annual meeting of the stockholders of the Ideal Cement Stone Co., Omaha, Neb., was held recently. The following were elected to the board of directors: N. J. Peterson, Charles Peterson, P. J. Denison, Elmer M. Carson and J. A. Pearson. N. J. Peterson was re-elected as president and manager; Elmer M. Carson, vice president; Albert V. Johnson, secretary-treasurer. The last year showed a very encouraging gain over the previous year. It has been necessary to enlarge the plants at Thirty-first and Spaulding streets and Twenty-fifth and Oak streets to take care of the steadily increasing demand for cement blocks and the other concrete stone.

Unit concrete building materials will be manufactured in Seattle, Wash., by the Washington Unit Brick & Tile Co., a corporation newly organized in King county with a capital stock of \$100,000. The company is a subsidiary of the American Roofing Tile Co., of Charlotte, N. C., a \$2,000,000 concern. The company will probably build a plant on Lake Washington. John Cheney, a representative of the North Carolina concern, arrived in Seattle a few days ago to arrange for the installation of the plant and the testing of the product. Norman B. Abrams, president of the Automobile Club of Seattle, is the head of the local organization, and Nelson Rich, Jr., son of Nelson Rich, railroad contractor, is secretary and treasurer. About twenty-five men will be employed in the new factory.



RESIDENCE OF RIDLEY F. TAYLOR, NEAR LONG BEACH, CAL.

Artistic All-Concrete Residence.

BY C. O. SPRENGER.

One of the show places of Southern California is the home of Ridley F. Taylor, recently completed at Los Cerritos Heights, a suburb of Long Beach. Being convinced that reinforced concrete made the most lasting and sanitary structure, that its composition met the climatic conditions of a seacoast homesite, especially in this part of the country, Mr. Taylor has had his home built of that material, and it, in conjunction with glass, forms the bulk of construction.

The walls, partitions, beams in the ceilings, the roof, floors throughout, the bathing pool (instead of bathtub), the pergola columns and beams, the low wall surrounding the property on three sides, the garage, and even the chicken coop are of reinforced concrete.

The prime ideas carried out in this house are perfect sanitation, as much sunshine as possible, as little artificial heat as possible and the saving of as many steps as possible in the care of it. With these ends in view the following innovations have been introduced:

In the main living room, some 20 feet square, the heat (necessary only during exceptionally wet weather in the winter season) is derived from a brazier set in the center of the room; its hood and flue of hammered brass is pulled down completely over the fuel basin until the fire is well started, then it is telescoped partway up through the roof, the upper end acting as a chimney. A screen of very close-wove copper wire netting surrounds the basin and inside of it, preventing the distribution of ashes. The dining room is heated with a fireplace, very deep, and a like screen set below the floor level.

The concrete floor in the living room is overlaid with red cement tile six inches square spaced with a half-inch of black cement, and the surface of the

tile covered with shellac, preventing absorption of dust or dirt.

The beams in this room, as in the others, were cast in forms built out of rough Oregon pine, specially selected for the beauty and pronounced lines of the grain, and these images have been perfectly impressed.

The family bedrooms are all on one side of the house, a large guest room at the rear end, dining-



MAIN LIVING ROOM, SHOWING BRAZIER AND INTERIOR FINISH.

room, kitchen, a separate pantry, refrigerator, store rooms and bathing pool on the other side.

All the rooms surround and open onto a patio 16 by 36 feet, with arched roof covered with copper wire netting. In this patio are concrete flower boxes and a fountain. It permits of sunshine in every room, even on the north side, and also gives daylight on two sides of every room and on three sides of the living and dining rooms.

Between the broad front porch and the patio is the conservatory with arched roof of colored glass; open at each end, this is used as a passageway between the living room and the dining room. Another passageway between the guest room and the patio connects the rear side rooms, leads to the pool and opens into the patio.

Under the rear end of the house is a concrete walled basement, and the joists over this, supporting the floor above are of concrete.

In this house the various rooms are finished in hardwood; all door and window frames are set flush with the walls, all base corners are curved, thus precluding the lodgment of dust and aiding the sanitary idea very materially. Wall paper is tabooed; instead, smooth, white and tinted plaster is used up to the frieze line, which begins half way up the wall, and from there the decorations are done in oil.

"When the upkeep and endurance of a home built of reinforced concrete and planned as this one is are considered," says Mr. Taylor, "I believe the

cost will be found less than the house of usual construction. It is certainly warmer in winter (barring an extremely wet season) and cooler in summer. Furthermore, it is far more sanitary, and there is also a feeling of security from fire and other elements."

Mr. Taylor is a designer and builder of many years' experience. He constructed the first monolithic concrete residence ever built in the United States, it is claimed, and this home was built for him by the Long Beach Improvement Co., while he was in charge of their concrete work.

INSTALLS CONCRETE MIXER DEPARTMENT.

The Power and Mining Machinery Co., Milwaukee, Wis., has organized a concrete mixer department which will be annexed to its extensive establishment. The new line will be known as the "International" and will be under the supervision of W. J. Rosebery, Jr., as sales manager of the new department. The line put out is to be unusually full. It will include globe, batch, low feeding type, continuous and tub mixers. Special attention will be devoted to street machines in two sizes. By arrangements with the International Steam Pump Company a full line of steam pumps will also be included in Mr. Rosebery's list. To make things complete, saw tables have been added. Through his long experience with handling and selling concrete mixers, Mr. Rosebery is eminently qualified to put out a good line. The plant of the Power Mining and Machinery Company at Cudahy, a Milwaukee suburb, is excellently equipped to give the mixers the best mechanical features and workmanship. Mr. Rosebery plans to secure a hustling sales force throughout the country. Stock machines will be carried at convenient places in the United States and Canada, and immediate delivery will thus be made possible.

Charles Easton, manager of the Interlocking Cement Stave Silo Co., Edna, Texas, has received all of the machinery necessary to make cement staves and has a large force of men busy turning out the work. This concern has a number of contracts on hand. A. C. Edenfield, representing the company, was in Mountain Park, Texas, recently, looking over the field for the purpose of starting a silo factory there.

Prince & Walker, Grand Island, Neb., have sold out their cement block business to James Prince, who expects to continue the same in connection with his own. Mr. Prince will hereafter devote his attention to sidewalk building, while Mr. Walker will look after their sand and gravel interests.

W. T. Brady, Tulsa, Okla., is planning the installation of a concrete tile plant at Bristow, Okla., which will make a specialty of irrigation pipe.

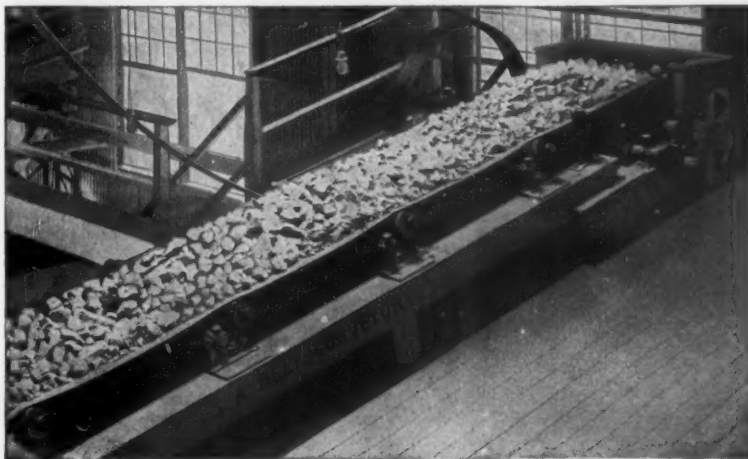


THE DINING ROOM, WITH BUILT-IN BUFFET, ETC., AND FRIEZE WORK.



THE PATIO, RESIDENCE OF RIDLEY F. TAYLOR, NEAR LONG BEACH, CALIF.

Efficiency in the Cement Products Plant



The first step towards efficiency is to reduce the labor cost. Eliminate that most uncertain and most worrying factor—the unskilled labor—and handle all of your materials on “S-A” Belt Conveyors and Elevators.

In many Cement Products Plants, our engineers have studied the situation and have devised new methods productive of wonderful savings. They have adapted “S-A” Conveyors to the unloading of the sand and gravel from the cars to the storage bins, and from these bins to the hoppers serving the machines. “S-A” Feeders, Gates, and Revolving Screens, entered into the arrangements where required.

These systems have all paid big dividends—and they were developed by our engineers and submitted for approval before a cent of expense was charged to the plant.

May we study your methods and try to improve on them? Write us the conditions under which your materials are handled—send a sketch if possible. If we can actually save you labor, we will submit you our proposition and prices.

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It's the most interesting and valuable book
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We design and equip Rock Crushing
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We manufacture Conveyors, Elevators,
Transmission Equipment, Gates, Feeders,
Car Fullers, Etc.

Get this—Dealers!

**PRECO CONCRETE ENAMEL PRODUCES
DUSTLESS, WATERPROOF FLOORS**



Preco Concrete Enamel keeps new floors like these, dustless, waterproof, and non-slipping—reclaims old ones.

IT can be applied to any dusty or worn out concrete floor with a brush, and change that floor from an expensive nuisance into an absolutely waterproof, dustproof, sanitary floor with a pleasing appearance and easy to clean. For a cent or two a square foot, a man can reclaim permanently the concrete floors in his building that he otherwise would be constantly repairing at great expense.

Where the dealer comes in!

We will supply any dealer with literature, etc., and a few samples already coated for demonstration and we *defy anyone* to scrape it off. It penetrates right down into the concrete, grips the loose particles, fills the voids, and puts a fine finish on the surface. If you want the exclusive agency for *Preco Concrete Enamel*, write now.

The Best Live Man gets it!

Also a chance to handle the following: *Preco Wall-Coating* for weather proofing and preserving stucco, stone or concrete blocks; *Premier Concrete Hardener*, (formerly Carbo-Lundum Hardener), for using with the materials in laying a new concrete floor to produce hard, durable toppings; and *Composition Flooring* of all kinds

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BOOKS FOR THE BUILDING TRADE

Contractors, Cement Users, Building Material Dealers,
Estimators, Manufacturers, Engineers

ESTIMATING AND CONTRACTING

A mistake in estimating means the difference between a profit or a loss on a contract. In these days of modern construction it is not safe to guess or go by "rule of thumb." Even experienced contractors who rely upon eyesight or rough calculations make costly errors.

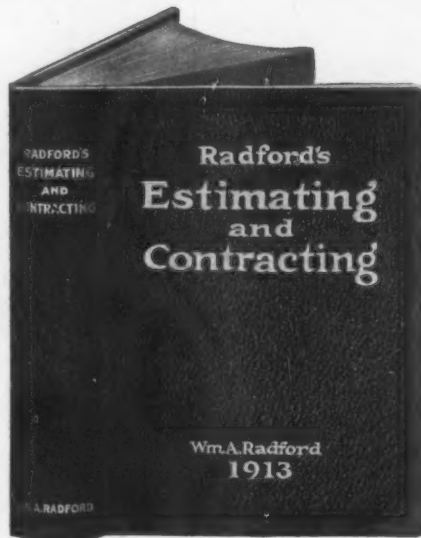
Easy to Overlook Details

It is mighty easy to overlook some important detail if it is not down in black and white. Jobs are lost because of too high prices. Profits are lost because prices are too low. Be on safe ground; have a reliable accurate guide to help you in your figuring.

Radford's Estimating and Contracting is a safe and sure guide for any contractor. Its 900 pages are filled with up-to-date methods for rapid, systematic and accurate calculation of costs of all types and details of building construction and all related work of contractors.

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It gives quotations and other data indicating the cost of materials and labor, standard schedules and forms used for measurements and estimates, labor-saving tables and all other points a contractor, builder or carpenter should know.



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ESTIMATING AS A SCIENCE

General Principles of Estimating; Estimating Essential to all Successful Business Operations; Requirements of the Good Estimator; Accuracy Versus Guesswork; What to Avoid in Estimating; Remedies for Inaccuracies.

ESSENTIAL BASIS OF ALL ESTIMATING

Analysis of Proposed Operations; Cost Finding and Cost Distribution.

CONDITIONS AFFECTING COST

Local Market Conditions; Freight and Haulage; Rates of Wages Paid in Various Trades.

METHODS OF ESTIMATING

Comparative and Analytic Methods; Approximate Detailed Estimates from Carefully Figured Data; Estimating by Cubical Contents of Similar Structures; Estimating by the Square of 100 Sq. Ft.; Estimating by Quantities; Unit-Cost for Materials.

COST FACTORS CLASSIFIED

Factors Common to Construction in General; Factors Involved in Special Types of Construction; Factors Incidental or Accessory to Various Constructions.

COSTS COMMON TO CONSTRUCTION IN GENERAL

Leveling and Preparing Site; Employer's Liability Insurance; Water Supply During Construction; Number of Men and Teams Required; Rates of Wages; Cost of Superintendence; Earth and Rock Excavation; Foundations and Footings; Back Filling.

COSTS INVOLVED IN SPECIAL CONSTRUCTION

CARPENTRY WORK
Measurements; Timber and Lumber (Grades and Sizes),

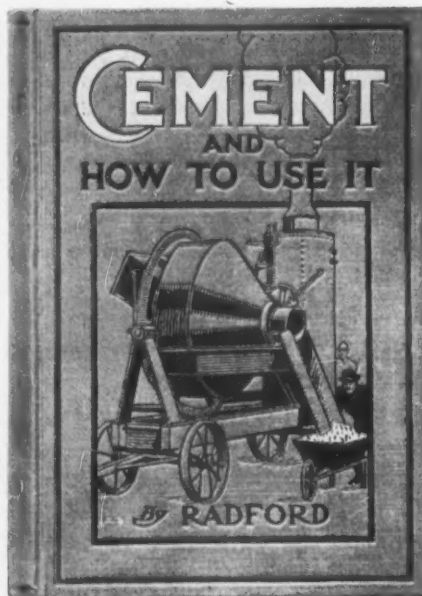
MILL WORK

Doors and Door-Frames; Sash and Window Frames; Blinds; Transoms; Mouldings; Columns and Capitals; Cupboard Doors; Store Fronts; Thresholds; Stairs and Handrails; Newels and Balusters; Grills and Spindles; Mantels and Consols; Chair and Plate Rails; Wainscoting; Screens; Weather Strips; Clothes Line Posts

CONCRETE CONSTRUCTION

Concrete Houses; Reinforced Concrete; Masonry Construction; Steel Construction; Heating; Ventilating; Plumbing; Gas Fitting; Electric Wiring; Plastering, Painting, Decorating; Paperhanging; Glazing; Hardware; Roads and Pavements. Price Postpaid \$2.00

Cement and How to Use It



"Cement and How to Use It" is illustrated with over 350 drawings, diagrams, details, etc., including many pages of full-page plates reproducing architects' original drawings and details of construction.

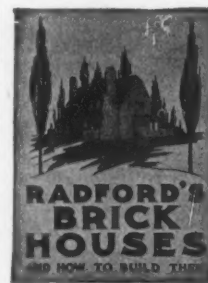
"Cement and How to Use It" is divided into many parts, making it especially valuable for the reason that each particular use in which cement can be applied is given separate and distinct treatment, and anyone in search of needed information can find it instantly.

"Cement and How to Use It" is the largest book of its kind ever published. It consists of 370 pages, size, 6x9 inches, and is printed from large clear type on a high grade book paper, especially made for it.

"Cement and How to Use It" is written so that any reader can understand any page, every term used, and every detail shown. It is entirely free from technicalities, and yet its pages are filled with practical information for all classes of cement users.

Two thousand topics relating to cement are discussed in this great, new book. No book attempting to treat this important subject has ever before so successfully covered the ground. Price Postpaid \$1.00

Every phase, part and use of this wonderful twentieth century building and paving material is treated fully and exhaustively with complete details showing each successive step to be taken.

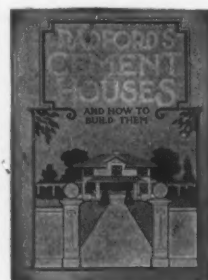


Brick Houses And How to Build Them

Containing 219 (8x11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc. A valuable book for the home builder as well as to the builder and bricklayer.

The houses shown are all of artistic design, drawn by leading architects and show what can be accomplished by the use of brick as a building material. The floor plans have received very careful attention so as to have a convenient and economical arrangement of rooms, with ample closet room and all modern conveniences provided for. Price Postpaid \$1.00

to have a convenient and economical arrangement of rooms, with ample closet room and all modern conveniences provided for. Price Postpaid \$1.00



Cement Houses And How to Build Them

This large book of 176 (8x11 inch) pages contains illustrated details of cement construction—standard specifications for cement—concrete blocks—general information concerning waterproofing, coloring, aggregates, mixtures, paving, reinforcing, foundations, walls, steps, chimneys, floors, etc., together with perspective views and floor plans of 87 stucco and concrete block houses.

The illustrations show the houses exactly as they will look when built and give a very clear idea of their appearance. All the floor plans are shown, giving the location and dimensions of all rooms, closets, porches, etc., with detailed information as to both interior and exterior.

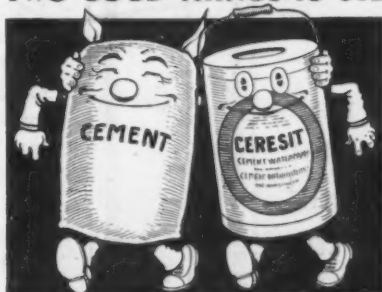
The houses illustrated range from the small to the medium large in size, such as will appeal to the average man or woman who intend to build a home. Price Postpaid \$1.00

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Therefore
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THE WATERPROOFER FOR CEMENT

The foresighted Dealer recognizes that Cement and Ceresit go hand in hand. Ceresit boosts Cement sales, for every order for Ceresit means an order for cement and sand.

23 New Dealers in 30 Days

These new dealers were secured in the 30 days preceding April 5th. Better get busy if you want to land your territory.

*Write for the April Issue of
 "The Ceresit Waterproofer"*

"The Ceresit Waterproofer" is a monthly house organ devoted to our dealers' interest. The April issue will be mailed out about April 10th. We have saved a copy for you.

Write Today.

Ceresit Waterproofing Company

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A Prominent Advertising Manager recently said:

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Why do the Packard experts choose UTILITY Wall Board?

Below we reproduce an order recently received from the Packard Motor Car Company for 74,350 square feet of Utility Wall Board. This is a mighty important bit of evidence for the quality of Utility. For, in their mammoth Detroit factories, the Packard experts buy supplies by rule of science—choosing only the best because their standard of quality demands the best.

Roberts MOTOR CAR COMPANY
DETROIT, MICHIGAN

To **Reyes Company**
2514 E. 11th Ave.,
Chicago, Ill.

Purchase Order No. **R 13376**
 Quantity **2-19938**
2-20-34
2.C.
 For **2-1975**
 Charge **2-25-50.**
 Date **2-25-50.**

Please furnish us material specified below: **Weight-250000 Lb.**

Quantity	Size	Length	Weight
24900	10" x 12" x 12"	10' - 0"	12' - 0"
43700	10" x 12" x 12"	10' - 0"	12' - 0"
800	10" x 12" x 12"	10' - 0"	12' - 0"
2200	10" x 12" x 12"	10' - 0"	12' - 0"
8750	10" x 12" x 12"	10' - 0"	12' - 0"
6000	10" x 12" x 12"	10' - 0"	12' - 0"

Please ship by **Express**

Please acknowledge receipt of this order and advise when delivery will be made. Material will be received subject to our inspection and if not in accordance with our specifications, or otherwise defective, will be returned to your warehouse. We reserve the right to return goods in whole or in part without notice and without obligation of return. We reserve the right to make changes in quantity, size, weight, or other specifications without notice. We reserve the right to make changes in quantity, size, weight, or other specifications without notice. We reserve the right to make changes in quantity, size, weight, or other specifications without notice.

Signature: **W. J. Solzgen**
 Title: **President**

Roberts Motor Car Company
 Detroit, Michigan

Conformation Department
R 13376

To Be Used in Their Dry Rooms

The Packard people intend to line the walls of their dry rooms with this order of Utility. They wanted a wall that would stand up and give lasting satisfaction, regardless of the enormous heat; a moisture-proof, weather-proof wall surfacing that would not check or fall off on the fresh varnish—and so they chose Utility.

UTILITY Will Withstand Severest Service

Severest Service

It's the "stuff" we put into UTILITY that makes it so good a wall board. The high-quality fibre board that is cemented together with a high-melt-point asphalt under enormous pressure. It's the quality of the materials we use and the way we apply them —backed by our years of satisfaction to customers, large and small.

UTILITY

the only ***Five-Ply*** wall board

We now use five layers because it gives that much more strength and stiffness than the usual two or three layers. These are durably cemented together with four layers of high-quality asphalt so that we get a non-cracking, moisture-proof wall that is impervious to heat or cold. It costs more for us to make Utility this way - but the cost to you is no higher. We know that you will like Utility. Let us send you a specimen and our booklet. Just drop a postcard. No obligation at all.

THE HEPPEES CO.

**Manufacturers also of Flex-a-Tile Asphalt Shingles,
Asphalt Paint and Asphalt Roofing in Any Finish**
4539 Fillmore St. CHICAGO, ILL.

LIME

A Pungent Question of Interest to Lime Manufacturers.

The general impression now prevails that the Eastern railroads seeking the acknowledged necessary five per cent increase of revenue will make a decided effort to put the burden of this increase on manufacturers who have private sidings, thereby giving the railroads at least part of the relief they asked for, and at the same time not antagonizing the general mass of people. This plan, it is claimed, will yield a revenue of \$40,000,000 per annum. The general freight increase asked for by the railroads would mean an increase of about \$70,000,000 per annum.

The manifest unfairness and injustice of this proposition of charging for shifting or spotting cars is evident on the face of it, because it means discrimination against low-priced heavy commodities, and those high-priced compact commodities which, in many cases, are more or less luxuries, would not bear any fair relative charge. For instance, a carload of wine that, in monetary value would be worth, say, the value of 100 carloads of lime, would bear only a \$2.00 spottage or shifting charge, whereas the same value of lime would sum up \$200 spottage or shifting charges. It also means that lime manufacturers are being penalized for being a carload shipper.

President Wm. E. Carson, of the National Lime Manufacturers' Association, Riverton, Va., is urging members of that organization to communicate with him with a view to presenting a brief before the Interstate Commerce Commission and protest against the proposition. Members are asked to answer and forward immediately to Mr. Carson the following questions:

- 1st—Have you a private siding?
- 2nd—How many cars do you handle per year, in and out?
- 3rd—Do you now actually enjoy ferry or trap car service?
- 4th—Your reasons for objecting.

By ferry or trap car service is meant the opportunity sometimes afforded shippers situated on spur tracks to load their less-than-carload shipments at their own factory or warehouse, the car then being switched to the freight house or transfer station of the railroad for reloading to destination or similar service on inbound less-than-carload freight. It is necessary that the Interstate Commerce Commission should feel the weight of the disapproval of the lime manufacturers, personally, and as an association.

A half interest in the Pebble Lime Works, Pocatello, Idaho, has been purchased by A. W. Harmon, of that city, and the business plans of the organization were generally perfected in order to accommodate a great increase in business which is looked for this spring. Mr. Harmon will have personal direction of the plant at Pebble, a few miles from Pocatello. Mr. Dolbeer will have charge of the selling end of the business, with headquarters at Pocatello.

Alabama Lime & Stone Co. is contemplating the erection of a plant at Paint Rock, Ala., to manufacture agricultural limestone, hydrated and bulk lime, etc. A total capacity of 40 tons of crushed stone, 600 barrels of lime and 15,000 bricks is proposed. All machinery will be purchased by H. M. Smith, secretary of the company, with offices at Rome, Ga. Boilers, engines, crushers, screens, conveyors, com-

pressors, drills, brick machinery, etc., will be needed. The general offices of the company are at Chattanooga, Tenn.

Richard Cloney and W. S. Perrott, of Loleta, Cal., are investigating the prospect for making use of the lime deposit near Rio Dell, in Humboldt county, Cal. It is believed that a kiln will be built in that vicinity.

The Valley Springs Lime Co., of Stockton, Cal., organized last year, is preparing to work a lime deposit near Mountain Gate, Calaveras county, Cal. The company has secured 480 acres, in which a large amount of good lime rock is exposed, and which was developed in a primitive way in early days. The company is incorporated with an authorized capital of \$200,000, with J. D. Fish as president and Frank Tucker secretary.

Business Sense in Farming.

BY KARL LANGENBECK.

The farmer is a wholesale producer, like the manufacturer. To succeed in business he must be guided by his principles. A manufacturer does not try to run a plant that is too large for his capital or his energies. If he has one that he finds too big for these, he rents out a part of his building and his power. He saves his strength and gains time for better supervision. He concentrates, and most farmers should do the same. But, few of them feel that they can cut down their acreage; the crops, the animal and milk yields are none too big as it is. That is true, but one and one-half times the labor now put on 25 acres and half the money value of such labor put into the one chemical that improves soil permanently, lime, will make them produce as much as 75 acres as ordinarily cultivated. In other words, two-thirds the cost of working the present average farm will get the produce out of one that is one-third the size. Less pay for help, reduced taxes and more energy to tend stock, repair fences, tools and buildings, will make the concentration pay.

Use of a Good Name.

A well-worked farm, no matter how small, increases a man's reputation, and reputation means credit. Like everything else, credit improves with use. It is hard for any man to get his first loan. It is easier after he has paid the first one promptly. No manufacturer or no farmer can get along who does not make and use credit. It is the banker's business to find money and loan it to work with. But, in making loans, he sizes up the man as well as the security. He prefers a tidy, productive property, and a man with a sense not to wear himself out.

Concealed Fertility.

Even poor land has much fertility locked up in it. By working only a sufficient part, which responds best to work, and aiding the work chemically with the fertility developer, lime, you concentrate your "plant." Let the rest of the land go—rent it or sell it off. If manure is insufficient, you must make nitrogen and humus in the soil with the use of legumes or clover. But the man who sows clover seed at \$8 to \$10 a bu-

shel, without liming, throws away his money. Every farmer knows this, or should know it, but too few do it. It is useful to help out with phosphates and potash when tillage and reasonable liming do not develop enough in the soil for a good crop. But, buying all of the crop's needs of these is extravagant waste. The man who makes the excuse that the season is wet and late, labor scarce, and that there is no time to spread lime now, but will leave it for next year, and for this attempts to improve fertility with a useless fertilizer, gives way to the worst habit. There will be just as many reasons next year for avoiding the "troublesome" but necessary job of liming. The man who feels that he cannot afford to buy lime or go into debt for it withholds the soil improper that lasts, that maintains fertility. A lime debt is a good debt. Every well-informed rural banker knows that a farm worked regularly to maintain its fertility, and not to get an exceptional bumper crop, sacrificing future productiveness, is the safest collateral. Money borrowed for labor and lime is a good soil investment for their efforts extend beyond the season.

An Interesting Fertilizer and Its Scientific Manufacture.

The problem of artificially fixing atmospheric nitrogen and combining it in suitable forms for plant food has been a difficult one for scientists and one which has had their serious thought and attention for many years. In 1895 two German scientists, Drs. Frank and Caro, found that when nitrogen gas in conducted through a hot mass of calcium carbide there is produced a compound known as cyanamid, very rich in nitrogen.

This form of combined nitrogen was found to possess particular value as a fertilizer and its use for

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LIME CO.
SPRINGFIELD
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COMPLETE PLANT, SHOWING INCLINE FOR CONVEYING LIMESTONE TO TOP OF KILNS.

this purpose has developed an enormous industry. Cyanamid factories have been established all over the world. One of the largest of these is located at Niagara Falls, Ontario, Canada, where large quantities of electricity, required in this industry, can be obtained at low cost.

The American Cyanamid Co. owns the sole right to manufacture and sell cyanamid in America and is protected by exceptionally strong and valid patents. Its factories at Niagara Falls began operations on January 1, 1910. The original plant had an output of 12,000 tons a year, but this was increased during 1912 to approximately 32,000 tons a year and further extensions are under way to give an annual output of 64,000 tons.

Cyanamid is a bluish-black, odorless, powdered material. It contains from 18 to 20 per cent ammonia, about 12 per cent carbon, or lamp black, and the equivalent of about 70 pounds of slaked lime. The material is sold on the basis of the ammonia it contains and shipped in burlap bags and can be stored indefinitely.

The manufacture of cyanamid depends upon the chemical fact that calcium carbide at a high heat combines with atmospheric nitrogen and forms calcium cyanamide. Calcium carbide is made by fusing together lime and coke in an electric furnace. The carbide is placed in the ovens heated by electricity to a white heat and nitrogen is led into the ovens and is there combined with carbide, forming calcium cyanamide. After cooling this material is ground, treated with water and put through a mechanical finishing process. Cyanamid is bluish black in color. It will readily be seen that for economical production of cyanamid the plant must be located where electricity can be secured at the lowest possible cost.

Before the installation of the cyanamid plant at Niagara Falls another matter of importance was to determine the kind of reducing gas to be used in the preparation of the nitrogen. After careful consideration a coal gas plant was decided upon, as the entire output of coke could be used in the manufacture of calcium carbide and the coal gas gave the greatest amount of carbon content for use in the nitrogen ovens.

The nitrogen ovens consist of a series of vertical retorts heated by small individual furnaces. Copper oxide is placed in these retorts, and when the retorts are brought to the proper temperature air is forced through the retorts and the oxygen of the air combined with the copper as cupric oxide leaving the nitrogen free. The air is then shut off, and as the oxide has gradually become foul during this cycle coal gas is then passed through the retort, which acts as a revivifier for the reducing agent. The nitrogen is then forced through pipes into the electric furnaces where it combines with the calcium carbide and forms calcium cyanamide, or commercial cyanamid.

The lime plant for the manufacture of lime to be used in the cyanamid plant was designed and installed by the Improved Equipment Co., New York, N. Y., and the original plant consisted of six Doherty-Eldred lime kilns equipped with the Eldred process and induced draft.

At the present time the plant is being doubled in size, and this view shows the new addition as well as the old plant.

Fires and Insurance.

This country has been literally on fire from one end to the other for eight weeks. While no great conflagrations have swept important cities, the number of individual fires in buildings of all classes has staggered the fire insurance companies. The South has suffered with the North. Life and accident insurance companies have been hit hard by these losses, and the whole insurance field is aroused. Fire insurance companies have been cancelling risks in extra hazardous districts and this affects banks and all other corporations and persons lending money on loss by fire.

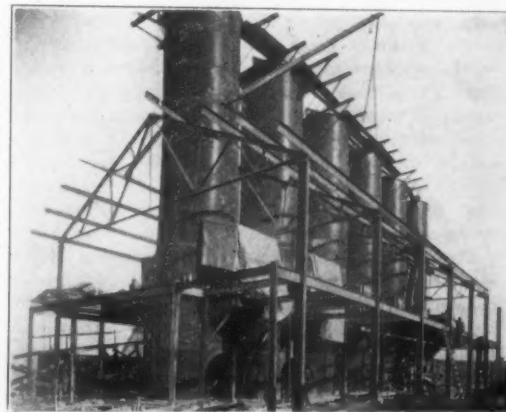
Most of these losses of life and property are avoidable, and, what is more, such losses are avoided in Western Europe. Americans take chances and pay a high price for their carelessness. Defective chimneys and pipe connections of furnaces, stoves and other heating apparatus cause an outbreak of fires every time a cold snap causes people to throw on a little more coal or wood. Houses and other buildings are constructed without due regard for safety because the owners can get insurance on almost anything. The careless builder or owner finds that he can skimp in a building and save ten per cent. of the cost by adding from one to three dollars a thousand to his yearly insurance premiums. He figures that it is cheaper to insure than to build safely.

Insurance companies issue policies on the cheapest class of frame construction in many mill towns and seaside resorts where the risk of conflagration is great. In such communities owners have no incentive to build well because their properties are surrounded by fire traps, so everybody relies on the fire department and the insurance companies instead of taking reasonable precautions to guard against

fire. In the case of the fire in the St. Louis clubhouse in which 30 lives were lost, the risk was known but the city authorities did not have the backbone to compel the influential owners to provide safety appliances. There are thousands of similar case in this country, including the section around New York, as recent fires in that city and Newark prove.

It is cheaper today than ever before to build fireproof structures. Cement, brick, hollow tile, terra cotta, metal lath, plaster board and reinforcing rods have been perfected and cheapened. Building laws should be enforced and greater attention given to the prevention of carelessness. Occupants fill cellars with rubbish and store inflammable articles under stairways and in closets. In such cases fire will spread through a fireproof building almost as easily as through one of inferior construction. The building may remain structurally sound after the fire and yet lives and contents may be destroyed.

Attempts to regulate insurance rates are unnecessary. Competition will lower them when the fire hazard is reduced. Its fight with the insurance companies will leave the masses without insurance, but the same old risks will remain. Large industrial risks stand in a class of their own. Insurance com-



LIME PLANT IN COURSE OF CONSTRUCTION, SHOWING KILN SHELLS.

panies insist on proper construction, sprinkling equipment and other protective measures in the case of large mills. Apply the same principles to all other buildings from a laborer's cottage up, and this country will no longer be notorious for its fire losses. As for incendiary fires, the insurance companies must minimize the incentive by exercising greater care in issuing policies.

Aberthaw, Glam., So. Wales, Feb. 20, 1914.

Editor ROCK PRODUCTS AND BUILDING MATERIALS—
I enclose check for my yearly subscription to ROCK PRODUCTS.

I find it each month increasing in information and interest, and you are certainly to be congratulated on so valuable a publication.

Yours faithfully,

W. A. BROWN, General Manager,
Aberthaw & Bristol Channel Portland Cement Co., Ltd.

Detroit, Mich., Feb. 11, 1914.

Editor ROCK PRODUCTS AND BUILDING MATERIALS—

I want to congratulate you on the consolidation of ROCK PRODUCTS and the DEALERS' BUILDING MATERIAL RECORD. ROCK PRODUCTS AND BUILDING MATERIALS should make a very good magazine and should certainly be attractive enough to secure interest twice a month.

UNITED FUEL & SUPPLY CO.,
J. C. Adams, Manager of Sales,
Building Material Department.



PLANT OF THE AMERICAN CYANAMID CO., NIAGARA FALLS, ONT.

Comparing Rotary and Vertical Lime Kilns

BY RICHARD K. MEADE.

Chemical and Mechanical Engineer, 202 N. Calvert St., Baltimore, Md.

My attention has been called to an article by Mr. E. Schmatolla in your September issue in which he compares the rotary kiln with the vertical kiln for burning lime, very much to the disadvantage of the former. Mr. Schmatolla has shown such gross ignorance of his subject in this article that I cannot refrain from pointing out some of his errors. First he complains of the separate system for cooling necessary with the rotary kiln and intimates that there is a loss of heat here. As a matter of fact, in a well planned rotary kiln lime plant the cooler is so located that the lime drops directly from the kiln into the cooler and the air for combustion enters the kiln through the cooler. The hot lime thus preheats the air for combustion and is in turn cooled by the latter. In practically all shaft kilns the heat carried past the arches by the lime is lost either by being carried out in the hot lime or else by radiation from the cooler shell. In the rotary kiln it is used to heat the air needed for combustion of the fuel.

It is true that draft is necessary in a rotary kiln. It is also true that draft is necessary in a shaft kiln, else why the many methods such as stacks, fans, etc., for increasing draft. Draft produced by any method other than a fan means hot gases discharged into the atmosphere and if a fan is used power and hence fuel to drive this. No shaft kiln has ever been devised which showed "complete recovering of heat which is contained in the combustion gases and of the heat contained in the burnt lime or magnesia." If such was the case a shaft kiln would show something like nine pounds of lime for one pound of coal, even allowing 20 per cent for loss in the gas producer. We know of no shaft kiln which does much better than 5 pounds of lime per pound of fuel and most shaft kilns do no better than a 3½ to 1 ratio. Tests of shaft kilns, including kilns using Schmatolla's System, show almost without exception a loss of 20-30 per cent of the fuel value in the heat carried off by the waste gases.

With most shaft kilns the drawing is done intermittently and whenever drawing takes place the whole kiln is cooled by the air entering at that time. In the rotary kiln no such condition exists and it is possible to so control the air that this need not exceed by more than 20 to 25 per cent the quantity of air needed for combustion.

Taking the actual facts into consideration, the rotary kiln is by no means twice as expensive to operate as a stationary or vertical kiln even when power to operate is considered. We know of rotary kiln operations where six pounds of lime are being burned with one pound of coal and I have yet to hear of any vertical kilns, whether fired with gas or by hand, which exceed this economy. If we add to this the coal required for power to rotate the kiln and cooler, even with the most wasteful power plant, this ratio will not be reduced to more than 5.75 pounds of lime to one of coal. An 8'x125' rotary kiln actually requires about 25 to 30 h. p. to revolve it and a 6'x60' cooler about 5 to 7½ h. p., or say the kiln, cooler, shafting, etc., including losses 50 h. p. at the engine. Allowing 5 pounds of coal to a h. p. hour generated by the engine and 5 tons of lime per hour as the output of the kiln, we see that the actual coal required for power amounts to only 50 pounds per ton, or 1 pound of coal for 20 pounds of lime. Where a rotary kiln uses a greater quantity of coal than this it has been badly installed, the power plant and transmission are faulty, or the plant is not operated properly.

Some power is required to operate the crusher as it is necessary to crush all rock before burning. This, however, is more than compensated for by

the fact that the stone does not have to be sized in the quarry with sledges and may be sent to the lime plant in as large pieces as a man can handle. Spalls and other small stone, which with a shaft kiln would have to be discarded can also be burned fully. These two items are sufficient to reduce the cost of quarrying by from 25 to 40 per cent. The radiation losses from a rotary kiln do not seem to be any larger than those from shaft kilns. While only a small portion of the rotary kiln is filled with the material and while the bare lining is continually exposed to the flame, still this lining is being continually brought in contact with the lime as the kiln revolves and gives up some of its heat to the lime, thus protecting it from over heating.

In a shaft kiln, the pieces of stone are large and as any lime burner knows do not by any means become heated evenly. The outside is always being exposed to a higher heat than the interior and certain parts of the kiln are hotter than the others. In a rotary kiln, the stone is being continually turned over and fresh surfaces and pieces exposed to the full heat. The stone is in small pieces and hence can be uniformly heated. In shaft kilns, the charge often sticks causing serious delay and inconvenience. In a rotary kiln, this, of course, never occurs.

As to the repair item on the rotary kiln, I have often gone into plants where a battery of ten rotary kilns were in operation and seldom seen one down for repairs. I have usually seen, in a pair of large gas fired vertical kilns, at least one down for repairs and sometimes both. The repairs to a rotary kiln are very light and I have had less trouble with the lining of such kilns than with shaft kilns. The brick around the arches of hand fired shaft kilns and the ports of gas fired ones are subject to full and continued heating by the flame and also to the strain put upon them by the weight of the lime descending when the kiln is drawn. This condition certainly tends to destroy the lining at these points. A rotary kiln can be emptied, cooled and the lining replaced while the shaft kiln is being drawn empty; and as every one knows loss of output decreases profits more than cost of repairs. A rotary kiln lining properly selected and handled with care will last from a year to eighteen months, at the end of which time the lower twenty feet will have to be renewed. Few shaft kilns can be run for half this time without making repairs to some portion of the kiln lining.

The rotary kiln has one great advantage which even its critics concede to it, viz., it will make lime out of carbonate of lime and magnesia, regardless of physical condition. It is not only adapted to burning the "muds" mentioned by Mr. Schmatolla but also to burning many highly crystalline limestones which fly to pieces on being heated and also very soft limestones which crumble in a shaft kiln and stop up the draft. Such stones are by no means rare and the highly crystalline stones are usually very pure. The soft stones also are found in many parts of the country and are often too of great purity, notably those found in Florida. The rotary kiln is also suited to burning many by-products such as lime waste from the manufacture of alkali, sugar and wood pulp by the sulphite process, thus turning a waste into a profit. Rotary kilns are now burning all of these materials successfully.

Unfortunately the product from the rotary kiln is in the form of small lumps and masons and builders are prejudiced against such lime, confusing it with air slacked lime, and much persuasion is necessary in order to get them to take it. This is probably one of the chief objections to the use of rotary kiln, viz.—the fact that it will not produce lump lime.

One of the objections on the part of the manufacturers to the rotary kiln is found in the need of employing gas producers, which always give trouble. For certain grades of lime powdered coal can be used to heat the kiln. If low ash (under 10 per cent) fuel is obtainable the impurities introduced into the lime need not exceed 0.75 per cent, as part of the ash goes up the chimney. Since the losses of the producer (20 per cent of the fuel value) are overcome and it costs as much to gassify coal as it does to pulverize it, the use of pulverized coal would increase the lime fuel ratio to at least 7 to 1. Iron manufacturers are now substituting powdered coal for producer gas quite generally.

The cost of a rotary kiln plant is greater than that of a hand fired shaft kiln plant of the same capacity but less than that of a gas fired kiln plant employing large kilns.

I do not wish, however, to be understood as recommending the rotary kiln for burning lime either in all or even the majority of cases. When lime is to be hydrated exclusively or where it is to go only to the metallurgical, chemical or agricultural trades, no kiln will make lime for this purpose so cheaply as the rotary kiln. It is also the only kiln which will burn certain limestones successfully or certain by-products at all. When lime is needed to supply a general trade, as is the case with most manufacturers and until such time as the trade is educated up to the rotary kiln product, I believe the shaft kiln will give better satisfaction. An ideal arrangement would be shaft kilns to burn lump lime for the building trade and a rotary kiln to use up the spalls from the quarry and to burn lime for hydrating, for steel mills, for chemical works and for fertilizer.

When rotary kiln installations for burning lime have not given success, the kiln has generally not been properly installed and equipped or is not being properly operated. In some instances, the gas producer gives trouble and in others the market will not take the fine lime. The pitch of the kiln, speed at which it is revolved, apparatus used to inject the coal or gas and feed the lime all have a bearing on the results obtained. What is good practice in cement burning is not good practice in lime manufacture, any more than it is in nodulizing iron ores, etc., for which purpose the rotary kiln is highly satisfactory.

The large gas-fired shaft kiln is undoubtedly working satisfactorily at certain plants, but only after a very heavy first cost had been met and much money subsequently expended in experimenting to find the proper points for admitting air and gas into the kiln and in changing the gas producers and even the lines of the kiln itself. I know of one instance where before the gas-fired kilns could be made to work satisfactorily both the producers and the kilns had to be rebuilt several times and of another where the core with the lime could not be reduced to below 20 per cent of the draw.

SERVICE BRINGS NEW BUSINESS.

"Any business man will admit that he has lost sales through inability to deliver the goods within a specified time," says W. L. Kissel of the Kissel-Kar. "Furthermore, he who observes effects closely, will acknowledge that much new trade is attracted through a reputation for prompt delivery. That is why so many owners of trucks, whether they are saving much or less over the old horse haulage methods, express the sentiment that under no circumstances would they return to the old way of doing things. The motor truck adjusts itself to changing conditions, its service expanding when necessary, while on the other hand, an animal is bound by certain physical restrictions. That, to my mind, and I think to that of most users as well, is a stronger argument than any actual saving in running expenses."

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

THE FRANCIS PUBLISHING CO.
537 S. Dearborn Street Chicago, Illinois

:: THE :: BOURSE

Advertisements will be inserted in this section at the following rates:

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Eight words of ordinary length make one line. Heading counts as two lines. No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYMENT WANTED

Experienced man wants work in May with sidewalk concrete in Illinois or Iowa. E. K. Baughman, Hagerstown, Md.

EMPLOYEES WANTED

WANTED—A salesman acquainted with Ohio Builders' Supply dealers and who is employed at the present time. Prefer a plaster salesman. Would consider a cement or hydrated lime salesman. Permanent position and good salary. Address KELLY PLASTER CO., Sandusky, Ohio.

CARS & LOCOMOTIVES FOR SALE

CARS.

156—5 yard 36-inch gauge all steel Peteler 2-way dump cars, built 1910 and '11. Thoroughly overhauled. Practically good as new. The best dump cars we have ever seen. We are putting these cars on the market at bargain prices. Write us for further information. Eight 36-inch gauge double-truck flat cars.

LOCOMOTIVES.

Eleven—12x16 Porter four-wheel saddle-tank 36-inch gauge locomotives, built 1910 and '11, and used until the end of the season 1911; practically new. One—11x16 Pittsburg four-wheel saddle tank, 36-inch gauge.

Thirty-five 9x14 Porter four-wheel saddle tanks, 36-inch gauge. Most of these have steel cabs and were built since 1902.

STEAM SHOVELS.

Three—Marion Model 60 steam shovels, in excellent condition; ready for immediate shipment. One—Bucyrus Model 65, with Model 70 front and applied. Thoroughly overhauled.

Two—Marion Model G shovels, in first-class condition. Also big lot steam shovel repair parts, and other contractors' equipment.

MINNESOTA EQUIPMENT CO., Hibbing, Minn.

BUSINESS OPPORTUNITIES

SAND.

The largest, purest silica sand deposit in the world; coarse, sharp, white; analyzing 99.90% silica, balance moisture; on railroad, near water transportation. If interested in buying same, write R. L. MARTIN, Ocala, Fla.

AGRICULTURAL LIME AND CRUSHED STONE QUARRY FOR SALE.

A well-developed lime and crushed stone quarry in Eastern Tennessee, situated on the Southern Railway, of approximately 43 acres, is now offered for sale at a very attractive price on reasonable terms. A big market exists in the territory for agricultural lime. Modern road building is now going rapidly forward, which will make a good outlet for that product. Full information and details obtained by referring to file 47833 and writing M. V. Richards, Land and Industrial Agent, Room 371 Southern Railway, Washington, D. C.

CLAYWORKERS CASTINGS GREY IRON.

Foundry Castings—Prompt delivery. WM. E. DEE CO., Foundries & Machine Shops, Chicago and Harvey, Ill. All kinds of clay-workers castings, dies, dryer cars, grate bars, etc. Main office, 30 N. LaSalle St., Chicago, Ill.

MACHINERY FOR SALE

BARGAIN.

42-INCH GAUGE, DAVENPORT SADDLE TANK CON-TRACTOR'S LOCOMOTIVE—13-TON: NEEDS OVERHAULING. PRICE VERY ATTRACTIVE. W. B. CRANE & COMPANY, CHICAGO.

FOR SALE PLANT and EQUIPMENT

Including Locomotives, Gondolas, Derricks, Hoisting Engines, Boilers, Coprocete Mixers, Rock Drills, Buckets, Pumps, Engines, Elevators, Conveyors, and Camp Equipment.

ALABAMA POWER COMPANY

Engineering Department, BIRMINGHAM, ALABAMA

PLANTS FOR SALE

FOR SALE—Fully equipped high calcium limestone property. Three patent kilns, new crusher, electrical equipment, eastern Pennsylvania, good Market, chemical and fluxing trade. Good opportunity for the right man. Address Box 968, care ROCK PRODUCTS.

For Sale—Property, including site of the Red Wing Brick Co., located at Red Wing, Minn. Plant consists of two Boyd special sand-lime brick presses, two cylinders and full equipment for 40,000 sand-lime brick per day. Correspondence solicited.

RED WING BRICK CO., Red Wing, Minn.

MACHINERY WANTED

Wanted—A No. 10 Gyratory crusher; also a 70-ton Bucyrus shovel. Address Box 984, care ROCK PRODUCTS AND BUILDING MATERIALS.

FOR SALE

- 1—No. 7 1-2 Gates "K" Gyratory Crusher.
- 1—No. 6 Gates "K" Gyratory Crusher.
- 1—No. 5 Gates "K" Gyratory Crusher.

All are Like New. Prices Low.
WILLIS SHAW MCHY. CO.
New York Life Bldg., CHICAGO, ILL.

FOR SALE QUARRY MACHINERY

CORLISS ENGINES: Two 18"x30" Allis-Chalmers Corliss Engines, right and left hand, rated 200 H. P.
BOILERS: Three 200 H. P. National Water Tube Boilers, 120-lb. Steam Pressure, Tubes 4"x18 ft.
AIR COMPRESSORS: One 13"x22"x16" Ingersoll-Rand two stage, belt driven Air Compressor.
One 8"x8" "Bury" Engine driven Air Compressor with Air Receiver and Automatic Pressure Regulator.
FEED WATER HEATER: One Cochran Feed Water Heater, capacity 1000 H. P.
VERTICAL ENGINE: One 7"x7" American Blower Co. Automatic Enclosed Vertical Engine.
STONE CRUSHER: One No. 5 Gates Gyratory Stone Crusher complete. One Jaw Crusher.
STEAM SHOVEL: One 30 ton Vulcan Self-propelling Shovel with 14 yd. dipper bucket.
LOCOMOTIVE: One 13 ton 24" gauge Shay Geared Locomotive. Also a number of 24" gauge Dump Cars.

Besides the above, we have a lot of Steam and Centrifugal Pumps and some miscellaneous machinery including Steam Hammer, Engine Lathe, Hoists, Pulleys, Gears, etc., etc.
Ingersoll-Rand Rock Drills, Stone Screens.

All suitable for Stone Handling Plant. Prices low for quick sale.

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537 So. Dearborn St., CHICAGO

IMPORTANT!

Advertising copy for issue of the 7th should be mailed us not later than the 25th of the month preceding. Changes of copy for the 22nd issue should be mailed not later than the 10th of each month. In complying with this request you will permit of ample time in which to have your ad set and receive proof for O. K., or corrections.

The Francis Publishing Company - 537 So. Dearborn St., Chicago, Ill.

We ask the cooperation of our advertising patrons in the matter of getting changes of copy for their ad into this office at an early date.

CLAY PRODUCTS

The Gillen Stone Co. has sold its quarry at Duck Creek, near Green Bay, Wis., to the Edward Gillen Dock, Dredge & Construction Co., of Racine, Wis.

The Choctaw Brick and Gas Co., located at Mansfield, Ark., intends adding a tile plant to the brick "foundry." The company has large deposits of native clay which will be used.

The Ogden Press Brick Company closed down a few days ago in order to place machinery which will double the capacity of the yards at Harrisville, Utah, and give employment to 80 to 100 men.

Danville Refractories Co., Danville, Ill.; capital, \$30,000; to manufacture and deal in refractories, silica bricks, shapes, magnesite and chrome production, clay products; incorporators, Charles J. Crawford, W. C. Johnson, Christ R. Leins.

H. Weil and brothers are planning to rebuild their brick plant at Goldsboro, N. C., recently destroyed by fire on a larger scale throughout. It will be fireproof and of up-to-date construction with new machinery and electric drive will be installed throughout.

The Des Moines Clay Co., Des Moines, Ia., owners of the Acme Roofing Tile Plant, landed the contract for the roofing tile for seven institute buildings being erected at Spokane by the state of Washington for the feeble minded. The roofing tile contract was the largest individual order of its kind placed in the United States last year and practically every large roofing tile plant in the country competed for the contract.

The Comanche Brick Co., Comanche, Tex., has completed the laying of the spur from the railroad main line to its factory site, and the unloading of the nine cars of heavy machinery can proceed. It is now expected that the plant will soon be in operation. The company will manufacture a sand-lime brick, which, it is claimed, is of a very superior quality. There is a large deposit of the raw material at that point, but this is the first effort to develop it.

The Pawhuska Vitriified Brick Co., Pawhuska, Okla., since the first of the year is under the control of E. B. Wentworth and I. E. Hunter, both experienced men in the business. The plant is now independent of any other yard or establishment and is rapidly securing a nice line of business. The plant has a capacity of about 75,000 daily and is running on about half capacity. They manufacture all kinds of brick for building and paving purposes and are preparing to put out a silo brick and make a specialty of silos during the summer.

The California Brick Company, at Decoto, Cal., is just starting up its plant, after being closed many months for alterations. The output will consist of paving brick, which is rapidly coming into demand in California. The plant has been completely remodeled, and is said to be one of the most modern brick factories on the Coast. The new equipment includes a special auger machine, two new dry pans and elaborate handling equipment, besides a large continuous Haigh kiln. C. E. Fuller, manager of the company, was formerly manager of the Buffalo (Kas.) Paving Brick Company. An office has just been opened in the Phelan building, San Francisco, in charge of L. R. McKinzie, sales manager.

Louisville Fire Brick Works, Louisville, Ky., amended articles, increasing capital from \$150,000 to \$250,000.

The Farr Brick Co., Cleveland, Ohio, \$3,000,000; incorporated by H. J. Farr, Ida Farr Williams and Ernest W. Farr.

Kirchner Brick Co., Cincinnati, Ohio, \$50,000; A. E. Dearmond, Frank B. Kirchner, J. M. Quinn, E. R. Garlick and W. C. Hahn.

The Mexia Pressed Brick Co., Mexia, Texas, has started work on its plant west of the city and expects to have brick for sale within 30 or 40 days.

The town of Meadville, Pa., 40 miles north of Pittsburgh, is arranging to pave five miles of streets this summer and will need 3,000,000 paving brick.

Risley Brick Co., Michigan City, Ind., \$50,000; to manufacture and sell clay products; William B. Hutchinson, Michigan City; C. W. Hotchkiss, W. J. Riley.

The Lock Haven Fire Brick Co. at Lock Haven, Pa., is arranging to begin the construction of a new concrete drying floor in which it expects to have a large business this summer.

The Kittanning Gray & Duff Brick Co., which received its charter from Pittsburgh recently, has begun operations at West Mosgrove, Armstrong county, Pa. Capitalists of Kittanning, Pa., are putting up most of the money.

The Modern Tiling Co., of Knoxville, Tenn., has gone out of business, its entire plant and equipment, including a factory site of two and one-half acres, with engines, motors, crushers, rollers, etc., being disposed of by auction for the benefit of its creditors.

Complaint has been made by the Hancock Brick and Tile Company, of Hancock, Ohio, against the Toledo and Ohio Central Railroad over what it terms unjust and unreasonable tariffs on brick shipments. It alleges increases in rates to specific points as from 5 to 33½ per cent. The commission is asked to order them reduced.

After prolonged debate, the city of San Francisco has decided to pave Third street, from Market to King, with brick. The property owners asked for asphalt, while the Draymen's Association wanted stone blocks as better for the horses. Brick was adopted as being less noisy than stone, and giving better traction than asphalt. The estimated cost is \$85,000. Third street is one of the most heavily traveled thoroughfares in the city.

R. L. Denison is contemplating the establishment of a brick plant at Port Arthur, Texas, which will cost about \$300,000. According to present plans the plant will employ about 150 men and will have a capacity of 150,000 brick a day. The machinery of the plant, according to present estimates, will cost about \$84,000, and there will be a 48-tunnel drier, 4 gas burning kilns and all of the latest brick and tile making appliances. Work of building the plant will begin at once.

Michigan City Clay Products Co., Detroit, Mich., has been incorporated for \$2,000.

Texarkana, Ark., charter filed: The Texarkana Brick Co., capital stock \$25,000; C. W. Fouke, president.

Pope Brick & Trading Co., of Coats, N. C., was incorporated with capital stock of \$100,000 to establish brick plant.

Port Arthur, Tex., R. L. Dennison and associates are organizing a company with capital stock of \$300,000 and will install modern brick and tile plant.

Thermos Brick Co. of California; Manhattan, N. Y. C.; \$10,000; A. J. Deberard, 350 Broadway, New York; Daniel McBride, New York; Charles Dugind, San Francisco.

Plans are being prepared for the addition to the Trenton Porcelain Co.'s pottery at Prince and Meade streets, Trenton, N. J., by Kleeman & Fowler, architects of Trenton, N. J.

A. M. Lewis, president of the Canadian Clay and Products Co., Hamilton, Ont., a new firm recently organized and capitalized at \$150,000, stated recently that the firm would be turning out between 40,000 and 50,000 bricks per day by June 1.

Mansfield, Ark.—The Choctaw Brick Co. elected the following officers to serve the ensuing year: W. O. Caldwell, president; C. W. Jones, vice president; H. B. Salls, secretary; P. A. Ball, treasurer, and T. P. Edwards, superintendent and general manager.

Webster City, Ia.—The plant of the Webster City Brick & Tile Co., sold at receiver's sale to Henry Teget and P. W. Lee, will be practically rebuilt. It is the intention of the new owners to have the plant running at full blast within three months. They plan to incorporate at \$50,000 and operate as a stock company.

Chehalis, Wash.—The Chehalis Brick & Tile Co. has announced further extensive improvements to be made in its plant, whereby it will be enabled materially to increase its output, especially of drain tile. A new shale crusher has been installed and shortly a new boiler and engine will be placed. The latter will double the power and boiler capacity of the plant.

Newburgh, N. Y., April 1.—Brickyards along the Hudson are somewhat slow in resuming operations this spring, owing to the severe winter, and the fact that there is still frost in the ground which prevents the taking of material from the clay banks. It will probably be two weeks yet before work is started. Last year the yards were in operation before April 1.

Montreal, April 2.—The directors of the Ontario National Brick Co., held a meeting here last week when satisfactory reports as to business at the new plant were submitted. The company at present has orders on hand for 20,000,000 bricks, and the directors expect that with the opening of spring and the revival in building operations these orders will be largely increased in the next month or so.

Brick Pavements As An Investment*

BY W. T. BLACKBURN, PARIS, ILL.

The wording of this subject would imply that such an improvement gave titled interest in the public highway of special value to persons or property. The title of the highway is usually vested in the owners of the adjacent property and only subject to an easement held by the public for the purpose implied in the purchase or condemnation as the case might have been, and should the roadway cease to be used for that purpose, the control and title would revert back to the owners of the abutting property.

The development of the country has led up to the demand for the more permanent highway connecting the source of production with the railways or waterways that carry these products to their place of manufacture. This improvement should be done at the expense of the general public. These demands are not local, depending upon the local surroundings for their development, construction and maintenance. The objection has often been heard that since the cities or places of concentrated wealth have made their own improvements, the several rural districts should therefore bear the burden of building these public highways that are of necessity for the benefit of the public of that particular county, state or nation. I therefore reason that the conception of the law is correct in the application of a general tax for these improvements, as they will be an asset, not only to the restricted district, but of value to the entire populace of the several units involved, selected and defined in accordance with the importance of the improvements contemplated. There is no doubt that a special benefit should be borne by the locality especially benefited.

If you could convince the general taxpayer that for every dollar expended he would receive two, then loan him the one and guarantee the return of the two, I feel sure that he would accept the opportunity; and yet that seems to be the opportunity presented to the public—the farmer and truck-gardener in particular—in the brick-paved highway. The little that the brick roads would cost each person amounts to nothing compared with the amount that such roads would add to one's yearly income, increase the value of the farm, and add in an untold measure to the happiness of the family. It has been estimated that 90 per cent of the criminals in the land originate in the city. We are spending immense sums for the building of court houses, jails and state prisons. If like sums should be spent in the improvement of our country highways and the general development of the resources of our country, giving employment to the unemployed in the building of the splendid brick highways instead of providing means for the employment for criminals from the prison, had we not better provide such employment as to eliminate the despondency of fathers and mothers and the discontent of the sons and daughters at the end of a mud road; by spending, if need be, greater sums in beautifying the lives and interest of the rural districts, thus reducing to the minimum the population of our asylums and prisons and making an investment that would do more for the uplifting of humanity than could be done if one-half of the wealth of the nation were spent in the persecution and confinement in prison of all the criminal classes. Invest your money in eliminating the criminals rather than in their punishment.

*Read at the convention of the National Brick Manufacturers' Association, New Orleans, La., March 217.

As to our yearly incomes and increase in value of our farm-lands, the following facts may be of interest. I recently observed the revenue from two separate farms of 320 acres each, located in the corn belt of Illinois—one at the end of a four-mile mud road. These farms should produce under the ordinary rotation of crops annually 280 tons of corn, 80 tons of oats and 120 tons of hay, or 480 tons in the aggregate to be delivered over four miles of roadway. On the brick road there has been delivered 11 tons of grain in one trip by one team, using five wagons, while on the earth road two tons were all that could be delivered by a similar team. As the haul was four miles in both cases and they could make three trips a day, twenty-four miles of team travel, the team on the earth road could deliver six tons per day at a cost for team and wagon of \$4.50, thus making a cost of 75 cents per ton for the four-mile haul; on the brick road the delivery was 33 tons per day at a cost of 19.7 cents per ton on a four-mile haul—a difference of 55 cents per difference in cost of \$264 on the 480 tons delivered.

This is only a small per cent of the actual loss to the farmer living on the earth road, as he has had to sell his grain at a time when the roads were in condition that it could be delivered without regard to the price of his product. From actual experience it has been demonstrated that this would represent a loss of \$1.50 per ton on corn, \$2.50 per ton on oats, and \$920 on account of not being able to deliver at the best market price. This, with the loss in cost of delivering, makes \$1,184, or 10 per cent on an investment of \$11,840, an increase in value of \$36 per acre on his 320-acre farm. This represents the investment in a nine-foot brick highway that has cost the tax payers of the township \$10,000 per mile; or, if all of the principal highways of the township could be improved, would only represent a tax on all of the property of \$10 per acre.

These brick roads are not a liability—they are an asset. They don't merely cost money—they make money. It isn't a question of whether we can afford brick roads—the question is, how can you get money enough together to do without them. Bad roads cost like the mischief. The most expensive road is the one we cannot use.

The cost of a brick road 10 feet in width, at \$1,100 per foot in width per mile as compared with the roads being built of other materials at a cost of \$550 per foot in width per mile, at the end of a 20-year period has been demonstrated to be less expensive after adding to the original cost in each instance five per cent on original cost together with the maintenance in either case for the 20-year period. This does not take into account the expense and inconvenience due to the repairs and resurfacing of the cheaper roadway, nor does it give credit to the brick road for being in a serviceable condition at all times for the 20-year period. Many brick streets are today in perfect condition that have withstood the traffic and the effect of the elements for more than 20 years.

The term "permanent roadway" is often misapplied; however, it has been said by a prominent authority that "the life of a well-constructed brick pavement cannot be estimated with any great degree of exactness—first, because the traffic conditions are constantly changing; second, because no brick pavement which has been constructed in accordance with the best modern practice has yet worn out. The amount of wear sustained by given pavements during comparatively long periods of years has been determined in several instances, but has usually been so small as to make the probable term of service appear almost indefinite." From such evidence we may conclude that the properly

constructed brick road is entitled to a life of 20 years without repair, or a period long enough to allow us to forget that the original construction ever cost anything. The original cost is as far as many of us can see. Benefits are too seldom looked into. We are inclined to complain of taxation as a burden instead of a blessing or the real foundation of our civilization.

The greatest assets of the most substantial nature are transportation and agriculture. Neither can be fully developed without the other. The total tonnage drawn over the highway at this time may be quite small, but upon the improvement and development of the road and the resources of the country, the tonnage may be increased many tons. While the requirements of today may be only 10 to 20 tons, these improved conditions have caused this road to become a main highway, with from 200 to 300 vehicles per day, many of them three to six-ton trucks. Not only should the improvement be made to care for the present traffic, but should be improved to provide for a far greater traffic, not only in the number of vehicles, but the character of the vehicles. The traffic which was once only local, confined to teams from a few of the neighboring towns and villages, has become interstate and almost national in character.

Such roadways should have a firm, unyielding foundation, drained so that the water will not remain inside ditches or be held in the sub-soil higher than within 18 inches of the wearing surface. Upon the foundation it has been found necessary to provide a sand cushion of sufficient depth to compensate for the irregularities in the base and the difference in the depth of the units used in the wearing surface. This cushion may be of a specified depth from one to two inches, preferably not more than one and one-half inches. The most important feature is that this sand cushion should be made firm and evenly compacted, in order that the bricks may rest thereon without imbedding them, as the space between the bricks should be left open to receive the bonding material. The specifications should make provision for the character of sand to be used and the proper preparation of the sand bed.

The material for the wearing surface should be of such a character as to withstand the action of the elements for all time. If these requirements be carried out, what other material could fulfill the specifications? Such material would be an asset for all time, or until it should be destroyed by impact or abrasion; and if perfect construction could be obtained we might truthfully claim a permanent investment. As the elements of grade, location, drainage and foundation are permanent, and if brick of such character as can only be injured or destroyed by a blow or abrasion be furnished and these of such quality as will meet the requirements of all other surfacing material, we certainly have the peculiar advantage in that they are not to be affected by frost, fire, or time. And now that the quality of abrasion and impact can so definitely be determined we are only subjected to the requirements of proper construction. The material should be of such character and placed in the roadway in such a manner as to offer the least resistance to travel. The surface should be made smooth and so bonded together as to become monolithic. Proper specifications should provide that the bonding material should surround every unit, and this bond should be of a permanent and enduring character.

These highways should be so improved that they will require the minimum of maintenance, and they will last in a serviceable condition longer than the life of the bond issue created to provide for their investment.

The funeral of John C. Smith, vice president of the Resolute Pottery Co., and for many years superintendent of the Cook Linoleum Co., who died from Bright's disease, was conducted from his late residence, 18 Wall street, Trenton, N. J., on Saturday afternoon, March 14, 1914.

Sand and Gravel

Lake Shore Sand & Gravel Co., Ltd., Toronto, Ont., has been incorporated with a capital stock of \$250,000.

Mineral Springs Sand & Gravel Co., Hamilton, Ont., has been incorporated with a capital stock of \$40,000.

Barton Gravel Co., Milwaukee, Wis., is erecting a gravel washing plant at Barton, Wis., which will have a capacity of 1,000 yards of washed gravel per day.

Provident Sand & Gravel Co., Waco, Texas, has been incorporated with a capital stock of \$25,000. The incorporators are A. R. Roberts, J. E. Stack and A. R. Wilson.

Wichita Sand & Gravel Co., Wichita Falls, Texas, has been incorporated with a capital stock of \$10,000. The incorporators are G. W. Snider, Nettie C. McIntyre and E. T. Wells.

The Silica Brick Co., Washington, D. C., has been incorporated to manufacture bricks, concrete, etc. The capital stock is \$60,000 and the incorporators are R. D. Marshall, J. F. Gressang, and J. G. Benton, of Washington, D. C.

A new improvement in the shape of a No. 1 washer with screen attached has been devised by the Stocker Concrete Material Washer Co., of Highland, Ill. This equipment does the washing and screening in one operation and is said to have proven satisfactory after repeated tests.

The San Marcos Gravel Co. has been organized at San Marcos, Tex., with a capital stock of \$10,000, which will be later increased to \$50,000. The company is completing a plant on the Blanco river, one mile from San Marcos, and a switch will be put in from the M. K. & T. railroad. N. T. Caswell is president, W. E. Allison is vice president, and W. P. Rylander is secretary and treasurer of the company.

The new plant of the Fountain Sand & Gravel Co., at Pueblo, Colo., is nearing completion and will soon be in full operation. It is said to be the largest of its kind in the state of Colorado and will have a capacity of 1,000 tons per day. The sand from the Fountain river will be elevated to a long tramway by means of a steam shovel and dredger and will be carried to a height of 85 feet where it will fall into three revolving screens, the mesh of each being different. In this compartment there will be a constant stream of four inches of water to clean out the dirt. It will then be graded into three different sizes. The plant is located on the D. & R. G. railroad.

A deal was recently closed by which James W. McGrath and T. E. McGrath, of the Mackinaw Sand & Gravel Co., purchased the interest of Walter Porter and W. H. Evans in that concern and the Evans-McGrath Co. The latter concern has a plant at Chillicothe, Ill., while that of the Mackinaw Sand & Gravel Co. is at Mackinaw. The stock purchased by the McGrath brothers gives them the controlling interest in the company. The firm name will be the Mackinaw Sand & Gravel Co., and the two plants will be consolidated. The offices of the new company will be in the Mayer building, Peoria, Ill. The Mackinaw Sand & Gravel Co. was recently incorporated with a capital stock of \$25,000. The incorporators, in addition to James W. and T. E. McGrath, are Thomas P. and P. L. McGrath.

A Successful Gravity System for Gravel Plants.

The heavy demand of the present day for sand and gravel in the cement and concrete industries, and the keen competition among the producers of this commodity, calls for producer plants which are rapid, economical and efficient. During the early days of the sand and gravel industry the machinery installed for handling the material was more or less experimental and in many instances plants were overloaded with unnecessary mechanical equipment. The present-day methods are to reduce the amount of machinery with an application of the most simple and efficient production equipment.

Among the more striking examples of an efficient and economical sand and gravel-production plant is that illustrated on this page, and owned and operated by the Atlas Sand & Gravel Company, of



ATLAS SAND AND GRAVEL PLANT WITH SHEARER & MAYER EQUIPMENT.

Indianapolis, Ind. Before this plant was installed experts of this company made a thorough study of gravel-handling machinery, with the object of eliminating power wherever possible, with effective mechanical application wherein the forces of gravity would carry a large portion of the power requirement. This plant was located on the Vandalia railroad, where a set of perforated steel gravity screens, working in connection with the drag line cableway excavator were built. Three separations of the material are made with this process. The gravel on being dumped upon the washing table receives the water and is simultaneously washed while passing through the process of separation. Both separa-



SAND AND GRAVEL CONVEYED TO SEPARATION SCREENS AND WASHER TABLE BY DRAG-LINE CABLE EXCAVATOR.

tion and washing is thus secured by an element of gravity. This process is shown in the accompanying illustrations of the Atlas plant. The power required in this process is the motor used for pumping the washing water. The gravity idea is followed out in the application of the excavator. The cableway excavator installed in this plant consists of a 1½-cubic-yard-capacity scraper bucket, suspended from a three-wheel carrier, which travels on an inclined track cable. This cable is attached at one end by means of a tension mechanism attached to a mast behind the bins, and the other end is fastened to a suitable anchorage buried in the ground. The filling of the bucket is accomplished by pulling it into the material by means of a pull cable attached to the bucket and when the bucket is filled the track cable is pulled taut by means of the tension mechanism. By tauting the track cable the bucket is lifted clear of the pile and it is then hauled up the inclined track cable by means of the pull cable. At the point of dumping an adjustable button on the track cable is provided. A traveler block, coming in contact with this button, dumps the bucket automatically by a continuous forward movement. A two-drum hoist operates this excavator. One drum operates the tension mechanism, and the other drum operates the pull cable, which loads the bucket and pulls it up the inclined track cable and also dumps the bucket.

The equipment described in the foregoing, as embodied in the Atlas plant, is the Shearer & Mayer drag line cableway excavator type, and includes every mechanism of that well known sand and gravel-producing mechanical operation. This type of equipment was extensively advanced in the concrete industry during the recent Cement Show by Sauerman Bros., Chicago, who exhibited at the show a complete and comprehensive miniature working-model plant equipment in full operation. The operation of this miniature in the Sauerman Bros.' booth was one of the big features of the Cement Show.

The Rosenberg Gravel Co., Rosenberg, Texas, is contemplating the improvement of its plant on the Brazos river.

Gasconade Sand & Gravel Co., Arlington, Mo., has been organized by R. E. Lee, president, Springfield, Mo.; J. H. Pillman, vice president; F. D. Pillman, secretary-treasurer; it will install double hoist engine, gravel bucket trolley, boilers etc.; cost \$3,250; mine sand and gravel. The company has been incorporated for \$15,000.

E. W. Haedrick, Mariner and Merchant building, Philadelphia, reports business booming up in the sand and gravel trade. He is looking for a more prosperous year during 1914 than was experienced during 1913, and also expects to exceed some of the largest contracts he had last year, one of these being a contract with the General Electric Co. for 25,000 tons of sand.

The Delaware river dredging machines, which have had little or no work to do on account of the severe weather, have renewed their work and for the past week have been quite busy. George W. Schuster, of the Van Brunt Co., 1407 Pennsylvania building, Philadelphia, Pa., large sand and gravel contractors, reports that the starting of these machines makes things look like a very prosperous year for this company.

The Largest Glass Sand Plant in the Country

Toledo can now boast of a real sand plant. Years ago extensive deposits of high-grade rock sand were discovered at its very door, but somehow the sand beds were never developed on the large scale their importance and quality deserved. In any event, the old mill burned a little more than a year ago and it was then that the Toledo-Owens Glass Sand Co. was organized. The ruins of the mill were razed and what remained of the machinery was scrapped. Ample funds were provided and within a year the present immense new plant has grown out of the ashes of the old one. The offices of the new company are 1401-1434 Nicholas building, and the plant is located at Silica, Ohio, eight miles distant.

The supply of high-grade, sharp rock sand is almost inexhaustible and is practically the only accessible rock of like nature in the state or adjacent territory. The glass sand quarried at Silica is pure white in color and of exceptional quality. It is known to the trade as being suitable for the manufacture of all kinds of glassware and although the major portion of the company's output will go to the glass plants in its territory, the sand is also used to a considerable extent by the steel and malleable iron foundries, the building supply trades and the plaster and concrete block makers. The product of this plant will also be used for glass cutting, polishing, grinding, enamel finishing, for the manufacture of silicate of soda and other chemicals and in the making of high-grade abrasives, etc.

The construction work at Silica is practically completed and the splendid new plant will produce sand by the 15th of April. It was the ambition of the owners to build the most modern and scientifically equipped plant in the United States. They

may run directly into the crusher house and dump their contents into the crusher itself.

The rock, passing through the gyratory crusher, falls to a 30-inch conveyor belt by which it is elevated to large rock-storage bins. From these bins the rock falls into either of the two secondary crushers, one of which has a capacity of 40 tons per hour, while the other will handle 75 tons in the same space of time. Since these mills can be operated continuously their daily capacity will aggregate 2,760 tons.

From the secondary crushers the disintegrated sand is carried into the washers—and they, by the way, are the most remarkable feature to be found in this truly remarkable factory. They are probably the most efficient and the most economical washers ever constructed. These washers, four in number, are in the form of reinforced concrete tanks standing some 30 feet in height and have a capacity of 250 tons of sand each. Thus 1,000 tons of sand could be in process of washing at the same time. The washing of glass sand is merely the agitation of sand in water. The former custom was to use the helical screw installation by which sand and water were moved forward, but the Toledo-Owens Glass Sand Co., building for capacity and striving for the most effective washing, fills their large tanks with disintegrated rock sand and compressed air and water under high pressure, violently and forcibly agitates the body of sand in pure, clean water. The foreign substance passing off in the overflow leaves what is probably the most thoroughly washed sand human ingenuity can produce. The capacity of these four tanks is almost unlimited, depending entirely upon the speed of operation.



PLANT OF THE TOLEDO-OWENS GLASS SAND CO., AT SILICA, NEAR TOLEDO, OHIO.

have spared neither effort nor money in the endeavor to reach their goal.

It is reported that this plant will have the largest daily capacity in rock sand, the greatest storage capacity and the most up-to-date equipment to be found in any of our American sand plants. The main building of reinforced concrete and steel gives an air of permanence which is gratifying to the sand buyer who is looking for a dependable source of supply. It is 401 feet long and 60 feet wide. Alongside of this immense building are the pump houses, the crusher house, the machine shop, the power house, the electric transformer, the water tanks and other necessary buildings, all constructed in the same substantial manner.

The Toledo-Owens Glass Sand Co. owns its own standard gauge locomotive equipment, together with a large number of six-yard automatic dump cars and a very large and powerful steam shovel for loading rock into the cars. This outfit, together with the traction drills and air drills assisted by high explosives, will be kept busy from daylight till dark supplying rock to the immense gyratory crusher, which weighs 275,000 pounds and has a daily capacity of 5,000 tons. The crusher is located at grade and its construction is so planned that the trains of cars loaded with rock from the quarries

The sand when washed clean is emptied by water force into a sump, where, by an air lift assisted by a counterpoise, it is moved to water-separating tanks and dumped into the damp sand storage bin. This bin is 250 feet long by 60 feet in width and will accommodate 15,000 tons of sand. When the sand has been well drained it will be picked up by a large electric crane and loaded into cars at either side of the storage room for the users of damp sand, or carried forward to the company's direct heat dryer.

The dryer can be operated continuously and has a capacity of 100 tons per hour. From the dryer the sand is lifted to the screen room and thence the clean, washed and dried sand falls into the immense storage bins which will accommodate approximately 8,000 tons of dry sand.

The factory equipment is practically all electrically driven. The water pumps have a capacity of 1,000 gallons per minute and the air compressor 900 cubic feet per minute. The machine shop is complete in every detail.

The company has exceptional loading facilities. Eighteen cars can be in process of loading at the same time and, if necessary, it is quite possible to load as many as 50 or 60 cars in a single day. The company will never be handicapped by a scar-

city of railroad equipment. It is so situated that it can always obtain an abundant supply from any or all of Toledo's 23 steam railroads.

With its new plant and its modern equipment the Toledo-Owens Glass Sand Co. is amply able to supply the users of sand in Ohio and in the adjacent states and will export to the Canadian trade by rail and water.

Louisville Sand and Gravel News.

Louisville, Ky., April 4.—All of the Louisville sand and gravel men are working full crews and preparing for what they expect will be a busy season. An unusual amount of street and sewer construction, together with the continued progress of the work on the Louisville and Portland Canal is counted on to take as much if not more sand and gravel that was required last year, in spite of several extensive building projects then under way. Small jobs continue plentiful and the month finds the men in better condition to handle any amount of business for the reason that their plants on the river front were not flooded this past winter, as is sometimes the case. Prices are said to be holding up, though collections are reported either slow or bad.

The Ohio River Sand Co. has completed the construction of its new bins at Thirtieth street and Broadway and is increasing the capacity at present of its yard at Brook and Water streets by the erection of a new bin. All of these improvements are of reinforced concrete. The company is working to capacity even this early, and John M. Settle, secretary, looks forward to a season of a large demand for sand and gravel.

The Nugent Sand Co. has completed plans and is expected to begin construction shortly of an additional bin at its plant, Sixth street and the river. The Nugent company is getting a goodly share of the supplying of the smaller jobs which have occupied the attention of the contractors and supply men for the last few weeks. It has built up a most satisfactory trade, one member of the company said, among contractors who come for their own materials. It is thus able to reserve its own wagons for the larger jobs.

All of the E. T. Slider company's men are engaged in getting out sand and gravel at present. Business is normal and the company is looking for immediate improvement.

Jacob Hoertz, a well known sand and brick contractor, is recovering from an attack of pneumonia.

Pittsburgh Sand and Gravel News.

Pittsburgh, Pa., April 2.—Pittsburgh sand companies are congratulating themselves that no flood has yet come. Everybody expected it. However, the snow is going off gradually without any rain or quick thaw and the ice is breaking up slowly so as not to cause any bad effects. There is still time enough for high water but the sand companies are well prepared against such an event and are watching every turn of the weather in the firmest hope every day that a flood will not come.

The Jefferson & Clearfield Stone & Sand Co., has resumed operations after a shutdown an account of the cold weather.

The Union Sand Company of Conneaut, Ohio, has decreased its capital from \$15,000 to \$5,000.

The Rodgers Sand Company has the best equipment this spring to begin its work that it ever possessed. Its barges and boats are being put in No. 1 condition so that when the rivers subside and the sun shines it will be ready for a big business.

The Iron City Sand Company has been working its boats some this winter although operations have not been very brisk. Competition, according to its officials, is very keen and prices are not satisfactory.

With the Quarries

The Riggs Stone Co., Memphis, Tenn., has been incorporated by J. H. Riggs, L. B. Lowenstein, F. C. Story and others; capital stock, \$2,000.

The Dry Creek Rock & Gravel Co. has been incorporated in San Francisco, with a capital stock of \$150,000, by E. L. Chlonpek, M. D. Flaherty and K. Smith.

K. F. Gill, Ste. Genevieve, Mo., is contemplating the development of limestone deposits near that point. It is said that equipment to cost about \$100,000 will be installed.

Certificate of change of name of the Becher Trap Rock Co., of Hartford, Conn., to the United Trap Rock & Construction Co., has been filed. Certificate of reduction of capital stock of the original company from \$75,000 to \$60,000 and certificate of organization has been noted. The president of the company is Charles H. Dresser.

The Murphy, Moulton Co., of Denison, Tex., who are engaged in paving at Denison, have developed extensive quarry operations at Stringtown, Okla. Material from the quarry is used entirely in their curb and gutter work, base and the asphalt wearing course. The quality of the rock is not surpassed by any in the United States, it is claimed, being geologically known as chert (commonly known as flint).

Bates, Borland & Ayer are now operating three quarries around San Francisco Bay; one in San Francisco, in conjunction with a large subdivision and paving contract; one at Piedmont and one at Stege, between Oakland and Richmond. The latter plant is now being enlarged to furnish rock for a \$200,000 contract recently booked by the company for work on the state highway. A lot of crushing and screening machinery has already been purchased.

The fifteenth of the month saw the resumption of work at the rock crushing and handling plant of the R. B. Tyler Co., at Ducker's Station, Ky., 18 miles from Louisville, on the Southern railway. The company is starting with a new plant throughout, this one taking the place of that destroyed by fire several months ago. In addition to crushed stone the company will get out rubble masonry stone and dimension stone, making a sort of specialty of work of this kind.

Louisville, Ky., April 3.—The plant of the Victoria Limestone Co., near Bowling Green, Ky., which went into the hands of a receiver last summer, is to be sold at auction on April 27 by Master Commissioner Speck, of the Warren circuit court, according to present plans. The plant, which is said to be complete in all respects, was valued by its owners, according to a statement issued just before the company failed, at \$91,000. Judge Moss, in an opinion recently rendered, held that the liens claimed by the Victoria Marble Co., the George Anderson Co., and the New Albany Manufacturing Co., all told, amounting to about \$15,000, were not valid.

A delegation representing fifteen crushed stone companies of Illinois, employing 30,000 men, protested to Gov. Dunne against the putting in of additional machinery at the state penitentiary at Joliet for the purpose of crushing stone to be furnished the counties for use in construct-

ing hard roads. They said this would result in great hardship to themselves and their employees, as it would curtail their sales. The governor informed the men that it was not the intention of the state to put in a steam shovel at the penitentiary, but that only an additional crusher would be put in. He said that even with the additional crusher the output of crushed stone a day would not exceed 1,800 yards, which, although three times the present output, would not be sufficient to supply the counties with half the stone that they desired. The representatives of the crushed stone companies were satisfied with this explanation and withdrew their protest.

An Important Canadian Quarry.

(Special Canadian Correspondence.)

Canada's largest producer of rock products are the Wallace Sandstone Quarries, Limited, producers of dimension blocks, pure lime, rubble, sawed,



ALBERT G. COTE, GENERAL MANAGER, WALLACE SANDSTONE QUARRIES, LTD., WALLACE, N. S.

planned and cut stone. The company's Eastern plant is at Wallace, Nova Scotia, from which it derives its name. The Western plant is at Tyndall, Manitoba. The company has as its general manager, Albert G. Cote, who for many years managed the business of the well-known Montreal firm of Francis Hyde & Co.

Mr. Cote is one of the best-known men in Canada when it comes to anything in connection with the builders' supply industry and since coming to Winnipeg, only a matter of a year now, he has managed to push the sales of his material to such an extent that Cote and the Wallace company's products are looked upon generally as the last word in quality.

The Western quarries and works are situated two and a half miles from Tyndall, Manitoba, which is a famous stone district. The company is the largest operating in the Dominion of Canada, with most modern machinery and equipment, being all electrically driven. There are no works of its kind on the American continent any better, it is said.

The quarry now being worked has a face of over 500 feet in width and is 2,000 feet long.

An immense surface has been cleared so as to enable the company to quarry fast enough to meet all demands. The concern owns 160 acres of quarry land, all of which has been proved by core drilling to contain the highest quality of stone. The cut stone capacity of the company is 250,000 feet per annum, so with this immense output the largest contractors feel safe in placing their business with the Wallace Sandstone Co.; and being makers of lime as well as of the various kinds of stone, buyers can get from one concern many different materials for a building from one reliable source, which saves a vast amount of time when every article has to be purchased from separate producers. Mr. Cote deserves great credit for the manner in which he has so successfully conducted the business and buyers of any of the material which he sells would do well to look him up when in Winnipeg. His office is at 1001 Winnipeg Electric building and a pleasant reception is always awaiting visitors.

The Nelson Davis estate of 120 acres at Ida, Mich., was purchased recently by Thatcher & Son Co., Toledo, Ohio. The property includes a stone quarry.

The plant of the Great Lakes Stone & Lime Co., at Rockport, Mich., will be completed and crushing stone by July 1 or before, according to E. P. Smith, head of the company.

The Patterson Nut Rock Co., of Oklahoma City, capital \$100,000. Incorporators, B. G. Patterson, Mora C. Clark, Oklahoma City; J. D. Olinger, Dallas; J. C. Ward, Wichita Falls, Tex.

President Fred Matthews is planning to double the capacity of his mill at Ellettsville, Ind., and to improve the switching facilities. The Matthews Stone Co. is the oldest quarry in the district.

Fire totally destroyed the building of the Columbia Quarry Co., south of East St. Louis, Ill., March 15. The fire was of unknown origin. The plant is located one and one-half miles east of Columbia, Ill. The loss is placed at several thousand dollars. Most of the damage is to the machinery.

An order for 500 brick dryer cars was recently secured by the Orenstein-Arthur Koppel Co., of Koppel, Pa., from the Bessemer Limestone Company, of Youngstown, Ohio. The Bessemer Limestone Company were very much impressed with the construction of the Koppel equipment, and in specifying it hope to effect a considerable saving in time and labor.

The Balfour Quarry Co., with headquarters in Asheville, N. C., has resumed operations at its quarry near Hendersonville. This quarry was operated extensively a few years ago, but for some time the company has given its attention to other properties. It is estimated that the resumption of work will mean an expenditure in the way of a payroll within the next year by approximately \$20,000.

The great San Pablo quarries on the Richmond (Cal.) water front, operated by Anson S. Blake and his associates, constitute one of the biggest industries in that section. Crushed rock for all purposes known to engineers is taken from these quarries and shipped to all parts of the bay and up the rivers to interior cities. The company has an elaborate carrier system that is a feature of its plant, and its own wharf.

Western Stone Co. to Rehabilitate.

Company Plans to Replace all Obsolete Equipment and Pay for Same Out of Funds in Hand.

Plans for the rehabilitation of its plants have been adopted by the Western Stone Co., Chicago, Ill., and it has been determined to expend a large sum out of the resources of the corporation for betterments that will place all equipment in a strictly modern condition. The work of replacing obsolete stone crushers and machinery with the latest devices of the kind will be done during the summer months, and when it is completed it is believed that a saving of not less than \$30,000 annually can be made in the cost of operation. Preparations have already begun for the contemplated work, all of the company's stone yards but one being closed and quarry operations suspended. The company is said to have enough material on hand to supply the trade for some length of time and the product can be handled through a single yard at a considerable saving while the rehabilitation is going on.

No Reorganization Planned.

Robert A. Burnett is vice president of the Western Stone Co. and has long been one of the directors of the concern. He is actively in charge of the company's affairs in the absence of the president, Congressman Martin B. Madden. No new securities of any kind will be sold, nor are any of the present officials of the company to resign at this time. The capital stock of the company is said to be in the neighborhood of \$2,250,000, held largely by Chicagoans. The crushed stone business has not been a prosperous one in the last few years, due to the highly competitive character of the enterprise, which has served to demoralize prices.

Production of Explosives in the U. S. During 1912.

Compiled by Albert H. Fay.

The total production of explosives in the United States during 1912, according to the figures compiled, was 489,393,131 pounds, or 244,696 short tons. This production is segregated as follows: Black powder, 230,233,369 pounds; "high" explosives (dynamite, nitroglycerin, dynalite, guncotton, etc.) other than permissible explosives, 234,469,492 pounds; and permissible explosives, 24,630,270 pounds.

As explosives are essential to mining, the Bureau of Mines undertook the compilation of information showing the total amount of explosives manufactured and used in the United States. This work was begun in May, 1913, when circular letters were sent to all manufacturers of explosives requesting that they report their total production for the year 1912. The majority of the manufacturers complied with the bureau's request within a reasonable time, although a few were more or less tardy in making returns.

This technical paper is the first publication relating solely to the production of explosives that the bureau has issued. It is expected that similar publications will be compiled annually and that with the cooperation of the manufacturers it will be possible to publish these statements within a few weeks after the close of each year.

Definition of Permissible Explosive.

An explosive is called a permissible explosive when it is similar in all respects to the sample that passed certain tests by the United States Bureau of Mines, and when it is used in accordance with the conditions prescribed by this bureau.

But even the explosives that have been passed those tests and are named in this list as permissible explosives are to be considered as permissible explosives only when used under the following conditions:

1. That the explosive is in all respects similar to the sample submitted by the manufacturer for test.

2. That detonators—preferably electric detonators—are used of not less efficiency than those prescribed, namely, those consisting by weight of 90 parts of mercury fulminate and 10 parts of potassium chlorate (or their equivalents).

3. That the explosive, if frozen, shall be thoroughly thawed in a safe and suitable manner before use.

4. That the quantity used for a shot does not exceed 1½ pounds (680 grams), and that it is properly tamped with clay or other noncombustible stemming.

It must not be supposed that an explosive that has once passed the required tests and has been published in lists of permissible explosives is always thereafter to be considered a permissible explosive, regardless of its condition or the way in which it is used. Thus, for example, an explosive named in the permissible list, if kept in a moist place until it undergoes a change in character, is no longer to be considered a permissible explosive. If used in a frozen or partly frozen condition, it is not when so used a permissible explosive. If used in excess of the quantity specified (1½ pounds), it is not, when so used, a permissible explosive. And when the other conditions have been met, it is not a permissible explosive if fired with a detonator of less efficiency than that prescribed.

Moreover, even when all the prescribed conditions have been met no permissible explosive should necessarily be considered as permanently being a permissible explosive, but any permissible explosive when used under the prescribed conditions may properly continue to be considered a permissible explosive until notice of its withdrawal or removal from the list has been officially published, or until its name is omitted from a later list published by the Bureau of Mines.

Furthermore, the manufacturers of a permissible explosive may withdraw it at any time when introducing a new explosive of superior qualities. And after further experiments and conferences the Bureau of Mines may find it advisable to adopt additional and more severe tests to which all permissible explosives may be subjected, in the hope that through the use of such explosives only as may pass the more severe tests, the lives of miners and quarrymen may be better safeguarded.

Pennsylvania Limestones.

Pennsylvania, with her great range of geological formations, has numerous beds of limestones, of which not less than 54 are sufficiently definite to have received distinguishing names. There are few counties of the state that are entirely lacking in limestone formations, though in the extreme southeast, along the northern border, and in the northwest, the limestones exposed are rarely suitable for development.

For soil amendment, the limestone must be reduced to a fine powder, by either mechanical or chemical means. Present information indicates that the fineness of the crushed limestone should be at least 1-60 of an inch in diameter, if economical, immediate return is desired. Large and complex crushing apparatus is required for this purpose. In mixtures of coarse and fine particles, produced by simpler apparatus, only the fine particles are of immediate value.

For neutralizing sour soils, the carbonates of lime and magnesia are practically the only valuable constituents of a limestone. The magnesium carbonate probably reacts somewhat more slowly than lime with the soil, but there sets up changes quite similar to those caused by lime. Some investigators who have found injurious effects from the action of magnesium salts, chiefly from studies with plants grown in dilute solutions of nutritive salts,

incline to advise against the use of magnesian limestone for soil amendment; but the conditions of field use are so different from those in which the injurious effect was observed, and the favorable experience with magnesian limestone so general and long continued in Pennsylvania farm practice, that the writer has not been convinced that, in localities where good magnesian limestones and limes are much the cheaper, it is advantageous to look afar and pay a higher price for non-magnesian limestone or lime.

It may be added that magnesian limestones burn more easily than purely calcareous limestones, but slake more slowly, with less manifestation of heat, with less swelling and sometimes with unsatisfactory pulverization; but that even highly magnesian lime commonly slakes fine, if abundance of water be used in the slaking.

Machinery and Economy.

The most important item in the reduction of cost in modern road building is that brought about by the invention of tractor trains for hauling the heavy materials from which road must necessarily be constructed. Probably the extended use of tractor trains could be made to double the mileage of road constructed, no matter what the price of construction adopted. In making up the cost of roads the item of the hauling of road material should be separated and set out in a line by itself so that it can be distinctly studied as a factorial part of the operation. The more intelligent study of road construction has changed the entire horizon of public attention. What the public now wants is mileage of road for the money expended, and not to have the road money considered as local graft to be distributed by the petty politicians of the various road districts.

No matter what the price of road materials may be, the transportation from the point of production to the work on the road is the main factor of cost. It will be found in many instances that the total transportation by railroad and by teams amounts to fully as much as the engineering cost plus the cost of the labor. The tractor train conveying a whole train load of material at the minimum cost of a steam engine and the rolling equipment attached to it will pay for itself very rapidly on no very considerable stretch of road work. We have done away with hand labor on the road to such an extent that the talk which some of our political friends so much delight to indulge in about convict labor has become entirely out of order, because we have spreaders, rollers, ditchers, graders and other heavy machines that are operated by a few skilled men, which puts the old time army of labor entirely out of commission and puts road work into another class entirely.

The big tractor train is merely the last step in the perfecting of road machinery so as to accomplish the maximum amount of road work with a minimum of men on the job. With full machinery equipment as we have it today no road contractor could afford to pay for the food that would be consumed by an army of convict laborers even if there was nothing whatever to pay to the penitentiary wardens for their services. Machinery has brought in economies which are superior and insurmountable by hand labor even if the laborers worked for nothing. More than this, road work that is built with the machinery equipment familiar to the road contractors of the present day make better and more durable highways than has ever before been accomplished, and for that reason the demand for good roads amounts to a demand for roads that are built with machinery equipment. The cutting out of the local unprepared and disinterested country teamster is the one great feature that is being developed to economize the cost of road construction, so as to get somewhere near the value of the dollar for the dollar expended in modern street and road construction.

Weather Conditions—Their Relation to the Quarry

The habit that recent winters have accumulated of holding over into the lap of spring has had a tendency to make the season of active operations in the quarry business shorter by preventing the beginning of operations until after a month or more of the expected time for opening the quarry has passed. We had just about as well realize now that the time for getting the pumps started is after the first of April instead of the first week in March, as we used to figure things 10 years ago. Quarry operations could have continued last year up to the first of January, and in a few cases quarries were operated straight on up to the holiday week. This is not possible in more than a small percentage of the plants for the reason that road contractors and other heavy users of the quarry product draw up their agreement to close with the 15th of October or the first of November on their old-time average basis of keeping away from the snow and ice which usually occur with the beginning of winter.

It is quite possible that the astronomical arrangement of the calendar has permanently changed. At least it seems to be so, for it is now a number of years since there was anything looking like a freezeup before the first of January. We recently heard one practical man make the remark that it was his opinion the use of such a large and ever-increasing volume of electrical current was having an effect upon the astronomical balance of things, which might be one of the causes of the change in the rotation of the season. The connection is not very distinct, but no such pronounced change could occur as noted in the last few years without having some cause, although it may not be apparent to the business man or even to the scientist.

Whatever the cause may be, the result of the same is the shortening of the quarrying season by delaying operations a month or more by the winter weather continuing over into the season, and a readjustment of the expected averages of weather may just as well be considered and discounted as to vainly imagine with each recurring season that we are going to swing back to normal again. Either the quarryman must figure upon a shorter season and a consequent advance in the price of his output in order to get the same amount of money upon his investment, or he has got to rearrange the terms of his contracting operations so as to have them run a month longer at the other end of the working period.

Few of the quarries have got their spring activities going at the present time; they are still in the condition of getting things ready. The pumps are running, the steam shovels are being overhauled, the bins are being repaired, the elevators, the motors and the screens are being readjusted, and in very many cases extensive improvements are being installed and it will be several weeks before the grind and the groan of the big crushers will announce that the season's output has begun to run in the ears. This thing of starting operations a month late has put the quarry business into the position of always speeding to catch up for lost time, and beyond a doubt this delay of getting started has been one of the factors in causing the increased wages that have to be paid to quarry workers who are thereby forced to have a winter one month longer than they expected, so as to gain the sustenance of their families during an additional month of idleness.

This has a direct bearing upon the cost per ton of the product of the plant and is one of those things that slip in unnoticed and is considered unavoidable, while it eats up the profit before the material is produced. Crushed rock is the cheapest product manufactured today. In fact, the price is no more than the cost of dirt, and yet it requires a very considerable investment in machinery and

real estate and the expenditure of large sums of money for labor, both skilled and unskilled. The producer has never received a price commensurate with the value of the product. The very cheapness of crushed rock has had not a little to do with the very settled and established opinion that it is of no value. In most of the large cities the cost of teaming from the cars to the job amounts to more than the cost of the product at the crushing plant, and the freight charges will average much more than the cost of original production; thus both the railroad and the teamster charge as much for their part of the delivery of this cheap material as the original producer who cuts up his real estate and who operates his extensive manufactories thereon.

Were it not for the improvements that the machinery and equipment people have supplied for the use of the producers of crushed rock, it would be impossible for any crusher to operate under the current average of prices. All of the improvements amount to indispensable investments on the part of the quarry operator, and the profits derived from the improvements he systematically hands over to his customers in order to reduce the price. Thus the customer, without participating in either the investment or the responsibility, acquires the total benefit of the progressive inventions that are introduced. This is not fair and just. The man making an investment and shouldering the responsibility ought to at least retain half of the benefits of the progress of improvement, and this cannot be done if with each improvement that is added to increase the output or to lower the cost of production it is promptly given to the customers by a proportionate lowering of the selling price.

Crushed rock is still one of those unfortunate products that has no recognized and established value, for the price is just what the seller can induce the buyer to pay for it. In nine times out of 10 the seller is not able to produce his material inside of the figures that he calculates to be his cost and consequently he nearly always has to shave the expected margin of profit, and sometimes it entirely disappears. Crushed rock, the product of the quarry, has grown to be one of the most essential and important of the building materials. This is a distinct addition to the ever-increasing volume of road and street material that has been the established market of the crusher for all past time.

The new and growing concrete industry is using very large quantities of crushed rock and the volume of this business will continue to increase, yet it has not grown, except in a few instances, to such proportions as to be distinctly felt by the big crusher men. One reason for this is the fact that during the period the concrete industry has been growing the crusher men have been putting in larger and larger initial crushers and thereby multiplying the figures that represent their total output. Thus the outputs have grown by larger multiples than have the tonnages of the concrete industry in their demand for concrete material. Naturally it takes a long string of orders to eat up the big outputs of the present date, and until the order books are filled up there is always a tendency to see if they cannot do it a little cheaper in order to encourage business.

Now, on the other hand, there is nothing in the world so discouraging as the cheap business which is taking just such time as this after the season is opened up and the output is provided for. A man is very apt to find that he could easily have moved the tonnage at full price which he was induced to take at a cut figure before his order book was filled up. None of us have ever got enough money for crushed rock because we have never had an established and recognized value for it. No matter what you quote a prospective customer he wouldn't think

it was cheap until he had chopped around to find out by the comparison of quotations that you were as low or lower than anybody else, and then he would be prepared to give you the order.

Now if we could only just shift this thing around on the other foot so that when a quotation is made the customer would know right away that the price is in line and about right, basing his ideas upon the intrinsic value of the material, then we would get around to a better basis on which to do business. There is no great fortune or nothing unreasonable about 75 cents a ton average at the crusher, and yet 90 per cent of the men in the quarry business of the country receiving offers for their product at such a price would not believe that they were awake when they heard the words or read the letter containing such figures. If a letter making an offer like that should get into a crusher office there would not be a man in the establishment that wouldn't believe that there was a typographical error or something else the matter, and yet the purchaser of every ton of crushed rock figures the percentage of profit in his business at a good deal higher rate than that would mean to the crusher man.

Not one out of a thousand orders that are on file in the crusher offices figures a blessed thing for the value of the rock as nature made it in the quarry. The real estate which can never be replaced is thus always thrown in for good measure, and just as sure as we are shooting down the rock and conveying it into the crushers and shooting it into the cars for delivery, the time is going to come when available real estate for profitable quarry purposes is going to get scarce, just like the American buffalo, which was the most plentiful game in existence when we were boys; and when that time comes a dollar and a half a ton at the crusher is going to be as familiar as the high prices that the last buffalo robe brought, which we used to give two dollars for when that species was so plentiful.

In every estimate of a quarry operation the cost of the fraction of the quarry destroyed in the season's operation should be taken carefully into account, because the inevitable day is coming when the hole is going to be quarried out, and when that time comes there is just about as near zero left as we know how to calculate. It is not like the farmers' crops, which, by fertilizing and farming, can be made to yield year after year indefinitely; but every yard taken out means one less in the hole, and it is a part of Mother Earth that somebody has got to pay for somewhere and if the man who owns it don't charge for it he is going to be the loser. These observations, picked up with some knowledge of the actual working of things, makes one feel like calling all the crusher men together for a smoker for the purpose of talking shop with a particular bearing upon how fool cheap we are trying to sell off the earth itself or the crust thereof to our customers in commercial sizes.

Maxecon Mill as a Tobacco Grinder.

Verily, the age of expansion is upon us, and the Maxecon Mill of the Kent Mill Co., Brooklyn, N. Y., appears insatiable in its lust for new worlds to conquer. It seems consumed with a desire to crush all opposition that comes within its massive jaws. For a number of years it has been successfully grinding flint, hard quartz ores, cast iron, slag, Portland cement clinker, traprock and various other materials. It seems to have conquered the sphere for which it was designed and is now looking for other fields. It has lately made the acquaintance of the "weed of comfort," for in the plant of the Kentucky Tobacco Products Co. it is being used to grind tobacco stems to an extreme fine powder at the rate of four to five tons per hour. This is some bulk when the light weight of tobacco is considered. So it would seem that Alexander has nothing on the Maxecon Mill.

GYPSUM PRODUCTS

New Company Is Formed.

Gypsum Products and National Alabaster Merge.

Three South Dakota corporations held stockholders' meetings in Hot Springs, S. D., recently, the National Alabaster Co., owning a large tract of alabaster land five miles west of that city; the Hot Springs Gypsum Products Co., which three years ago purchased 25 acres of gypsum land within the northern limits of the city, and the Hot Springs Alabaster & Plaster Co., incorporated last month.

The last-named company was organized by the stockholders of the two old companies for the purpose of consolidation, thus concentrating capital and eliminating the necessity of two plants. The plant, which will be modern in every way, will be located just north of the Burlington roundhouse, Hot Springs. Alabaster will be sawed into slabs, which, when polished, will be used for interior decorations as a substitute for marble and for which there is a large demand. Gypsum will be manufactured into plaster for dental and surgical use, for high-class interior decorations and ordinary hard finished walls.

The directors of the new company are: Ray Nye, president, Freemont, Neb.; F. M. Stewart, vice-president, Buffalo Gap, S. D.; W. A. Jackson, secretary-treasurer, Chicago, Ill.; Dr. R. C. Brophy, H. C. Moore, E. J. Stevens, of Chicago, Ill.; E. L. Hoppe, Freemont, Neb.; A. C. Clas, Milwaukee, Wis.; C. T. C. Lollich, Hot Springs, S. D.

A contract has been entered into with a well-known and reliable investment company of Chicago for the sale of stock, and as the properties are said to have been thoroughly investigated and the products tested by experts in each particular line, it is fair to presume that the \$60,000 necessary for the construction of the plant will be promptly disposed of and work on the building commenced with the opening of spring.

Louisville Plaster News.

Louisville, Ky., April 4.—The season for the wall plaster men in Louisville and hereabouts is opening up with a large number of small jobs. Nothing extraordinary was noted by the plaster men as to present conditions, except that they are equally dependent with all others in the building lines on the restoration of security in the matter of the fire insurance situation. Collections are reported somewhat slow, though improvement in the last week or so is noted.

The Kentucky Wall Plaster Co. finds business picking up since the weather has become more or less settled. The company is in position to undertake anything immediately, not having to overcome the handicap they suffered last year when the plant at Brook street and the river was flooded by the high water. Building operations not being as far advanced as they were last year, J. B. Campbell, secretary of the company, said they are not as busy as last spring at this time. Mr. Campbell said that the company is not yet operating the plant of the Southern Wall Plaster Co., which it recently acquired, but would start it up as soon as business conditions and demand improved.

The Atlas Wall Plaster Co. has recently completed an addition to its plant in the shape of a frame extension, 80 by 10 feet, along one side of the plant. W. Selke, president of the company, reports business as picking up nicely. The Atlas company has on hand one big contract, that of supplying the

wall plaster for the new Date street Ward school, which is under construction on Twenty-sixth street between Kentucky and Date streets.

E. J. Kollross, until recently secretary of the Southern Wall Plaster Co., is now engaged in the contracting end of the business.

ACME CEMENT PLASTER USED.

Acme cement plaster was used throughout the First National Bank building at Dallas, Texas, the ceilings and walls of the rooms and halls being plastered with "Acme", a Southwestern product which is manufactured in Acme, N. M., from the gypsite which is so plentifully found extending throughout the entire Southwestern section of the country. It is this material which forms the wonderful tract called the "White Sands," near Alamogordo, N. M. The Acme cement plaster has an unusually good finish, which adds greatly to the appearance of the rooms, and, added to its attractiveness in this respect, is its great durability. In the plastering of the walls and ceilings of the rooms in the First National Bank building over 200 tons of Acme cement plaster were used.

For the fancy molding decorations in the bank building, Acme cement molding plaster was used, about 20 tons of the material being required to carry out the ornate design, which adds such a handsome appearance to the room. The adaptability of this material for such decorative work is splendidly demonstrated by the finished ornamentation of the room.

Walsh and Di Giorgio, Inc., Belleville, N. Y., has been organized with a capital stock of \$25,000. The company will manufacture architectural cast stone, etc., and will do ornamental plastering. The incorporators are: D. A. Walsh, S. E. Walsh, of Belleville, and A. Di Giorgio, of New York City.

Construction work on the new American Cement Plaster Co.'s plant at Fort Dodge, Iowa, is progressing rapidly. Roy Henley, general superintendent, stated recently that the mill would probably be in operation by the first of June. At that time it will be started with a full force, it is contemplated, as orders have been piling up for some time.

Alaska Barge Co. is now bringing in cargoes from the gypsite mines at Gypsum, Alaska. One of the mine shafts was flooded last fall, putting it completely out of commission, but all the water, with the exception of 40 feet, has been removed. Another shaft is being sunk rapidly and will be used in the operation of the mine in the event the other shaft will have to undergo repairs. In either case the mine will be restored to its full producing capacity in a short time. The barges are under contract to the Pacific Coast Gypsum Co., which operates the mine at Gypsum, Alaska. The officers of the gypsum company are: president, Richard Vaeth; vice president, S. A. Perkins; secretary, A. F. Albertson, and general manager, W. R. Nichols, all of Tacoma, Wash., where the headquarters of the company are located. The capacity of the plant at Gypsum is 150 tons, which is used in the manufacture of hard plaster and cement.

The Keystone Plaster Co., of Philadelphia, has been quite busy, considering the weather. Their works in Chester have been on the go continually and they have several large contracts on hand yet to be fulfilled, with expectations of many more during the coming several weeks.

California Rushes Highway Improvement.

A \$5,500,000 guarantee of faith in the value of the state highway system has been furnished to the state of California by counties which have subscribed for highway bonds in excess of that amount in order to assure prosecution of the highway work in advance of the opening of the 1915 expositions. The state highway bonds bear 4 per cent interest, and under the law must be sold at par and accrued interest. No sales have been made in the general market since October, 1912.

When the lack of a market for low rate bonds promised to continue, the highway commission appealed to the supervisors of counties to take advantage of an act passed by the last legislature permitting investment of county funds and reselling of state bonds. In return for this co-operation the highway commission agreed to expend the sums received within the limits of the counties financing the bond sales.

About thirty counties have responded, permitting a total of \$5,719,500 of highway bond sales, with about \$1,000,000 additional informally pledged. Most of the counties have merely taken care of the shrinkage between the par value and the market demand. As the state maintains the state highway the saving to the county in maintenance in practically every instance is as great in the first year as the depreciation loss which the county stands to make the bonds saleable. Several counties with considerable money on hand are keeping the bonds, thus bringing an interest return of 4 per cent in place of the 2 per cent which the funds have been drawing from the banks. The depreciation has averaged less than 5 per cent.

This co-operation the highway commission believes will make possible the completion in time for the 1915 exposition the greater part of the coast line between San Diego and San Francisco and north to Eureka, the west Sacramento valley highway from Red Bluff to Benicia, and a considerable part of the route through the San Joaquin and Sacramento valleys between Bakersfield and Red Bluff via Fresno, Sacramento and Marysville.

BIG INDUSTRY WILL ENLARGE.

The Baltes Stone Co., Fort Wayne, Ind., is contemplating a substantial enlargement of its plant at Montpelier, Ind. The No. 5 crusher will be displaced by a No. 9. The concern will then have three crushers, a No. 9, a No. 6 and a No. 5 in operation. The power will be changed from steam to electricity. Several large bins will be erected and when complete the storage bins will hold 1,200 tons of crushed stone. The capacity of the new plant will be approximately 60 earloads per day.

"A Manual of Electrical Testing" is the subject of a new 48-page bulletin, size 8 by 10½, issued by the Wagner Electric Manufacturing Company of St. Louis, Mo. Besides describing the line of portable instruments manufactured by the Wagner company, this bulletin describes various types of electrical instrument movements, the errors to which they are subject and gives suggestions for their handling and care. The methods for making tests on alternating current and direct current motors and generators and on transformers are described at length and illustrated by comprehensive and instructive diagrams.

RELATION OF CONTRACTOR TO SUPPLY MAN.

(Continued from Page 17.)

cessful, to establish a reputation for carrying high class material and to maintain such prices for that material that he will show a good profit at the end of the year, over and above interest charges, losses in business, depreciation, etc., and there is no reason why this cannot be done if there is loyal co-operation between the members of this association. While I am a builder and looking for low prices, I feel that I lose nothing by paying a fair profit on my material, provided my competitors cannot purchase lower than I can.

I do not think, however, that the quality of material on which a dealer may be submitting a bid should be seriously considered in naming his prices to the builder. He should also consider the builder's reputation for fair dealing and for prompt payment. If you dealers would make a more marked distinction between those of the builders who are honestly attempting to maintain a high standard in the building business, pay our bills, treat our clients, and at the same time our sub-contractors and dealers, fairly and with justice, you would be helping us and, at the same time, helping yourselves by tending to eliminate by such discrimination the two classes of builders who are hurting all of us connected with the building business—the "pirate," who makes his profit by making charges against his sub-contractors and supply men that are exorbitant and sometimes without foundation, and the unintelligent, financially irresponsible builder, who does not figure his work correctly and when confronted with a loss, simply lies down completely or attempts to skin the job to such an extent that all parties connected with the work finally suffer both financial loss and loss of reputation.

Builders who realize their responsibility to the dealers and encourage the dealers to efficiency in every way, and dealers who realize their responsibility to the builders and the builders and clients whom they serve, can by mutual efforts do more to bring the building business up to the standard that it has reached abroad, which is far above our organization in the same line existing today than any other combination interested in the same line can do.

It seems to me that it is also of the utmost importance that the dealers co-operate with the manufacturers with whom they deal, in such a way as to encourage them to make every effort to perfect their organization and product, keeping them fully informed of the new demands of the building public as you can foresee them, which you can do, and do do unconsciously, more quickly than any other branch of the building business, and by cultivating and helping such manufacturers as show a desire to advance, bring the producing end of the building business up to a higher and higher standard.

You also should make it your business to eliminate so far as possible from your dealings those manufacturers who in one way or another show any tendency to go down hill in the quality of their goods, their system of handling orders, or their honesty and truthfulness.

By eliminating many confusing details that are prominent but not fundamental, I feel that the dealer is as necessary to the manufacturer as the manufacturer is to the dealer, and the same is equally true when the dealer and the builder are considered. A full realization on the part of the manufacturer, dealer and builder of what each one's responsibilities are to the other, where they begin and where they cease, and an honest effort on each one's part to shoulder his own responsibilities and force the other with whom he is dealing to shoulder his, will surely produce those results that we are all in this building business most interested in and most anxious to obtain.

While the relations between the contractor and the dealer are of the utmost importance, the subject is not one that requires very extended discussion. I think, however, it might be interesting to cite a few examples of "service" which I received from supply men, as well as sub-contractors, who occupy the same relative position to the contractor.

When my company was awarded the contract for construction of the Seigel Department Store in Boston, about seven years ago, it was under conditions which I believe were the most severe of any contract ever awarded to a Boston contractor up to that time. The building cost about one and three-quarter million dollars, occupied practically one city block with an important and busy street on each of the four sides, leaving no room to store material outside of the building lines. The contract called for the completion of the building, ready for occupancy, in nine months, with a penalty amounting to \$175,000 for failure to complete on time. You can well imagine that in a contract of this kind "service" was the most important consideration.

Our first contract to award was for teaming the excavation, which amounted to about 60,000 yards. We found only one man whom we thought sufficiently equipped to handle this work, and our judgment soon proved correct, as we were obliged to run twenty hours per day, and our requirements varied from 75 to 150 double teams during the day and from 50 to 100 teams during the night, removing from 1,000 to 1,500 cubic yards every twenty-four hours, all of which had to be put on scows and towed out to sea, and at no time did we have to fall back on any other contractor to keep up with our requirements.

Our cement was purchased direct from the mill and was easily taken care of in carload lots, we being able to store some 1,200 barrels on the lot.

Our sand we purchased from the same party who furnished the teams, as we were able to get very good service from the fact that the teams delivering sand took back a load of dirt or rubbish, and thus saved time as well as money, as the scows which took the dirt out to sea were lightened alongside of the scows which brought in the sand.

Our next purchase was crushed stone, which, in Boston at least, is very difficult to obtain in large quantities as required. In this case also we decided that there was only one man that could supply the "service," and while his price was somewhat higher than others, we awarded him the contract, and here again our judgment proved correct. Many times during the construction of the foundations there would be from three to four teams standing on the street all night ready to dump into the bins as soon as there was room for the stone, which we were using at the rate of 300 tons a day.

The next important purchase was common brick, which we bought in Connecticut, using at the rate of 100,000 per day of eight hours. Although we had some demurrage to pay, it was comparatively small for the 3,500,000 brick which we used, and only once did we have to fall back on local brick, which was due to lack of teams.

Our steel we purchased direct from the American Bridge Company, with the understanding that they should make arrangements with the railroad company for yard room to store at least 500 tons, which we could get as required, and this proved of great value, as we were held up three weeks on account of a strike and could not have taken care of the material at the building.

The fireproofing was another contract of great importance, and here we again gave a preference of several thousand dollars, due largely to qualifications of the general superintendent of the company, whose energy and ability I had watched with great interest for several years, and the fact that he is

now my assistant manager is proof that he made good, at least in my opinion.

And so all other contracts for material and labor were awarded with "service" the first consideration.

You can see from these few examples that we regard "service" the most vital consideration in the purchase of material of any kind and in awarding contracts for both material and labor.

And now to summarize:

Loyalty to your association and each other; co-operation with builder and manufacturer; service. Get and give these three things and your ultimate success is absolutely assured.

The Political Factor In Road Building.

Just as this paper goes to press about one-half of the road commissioners of the state of Illinois, and something like ten or twelve other states throughout the central part of the nation, are being voted for. Now the job of road commissioner, truthfully stated, may be interpreted to read "the selection of an incompetent, disinterested and altogether irresponsible and insignificant politician to handle all of the public money apportioned to road maintenance and construction and to the repair and construction of highway bridges, culverts and other improvements." From the practical point of view it is one of the most important offices within the gift of the people, because it has a direct bearing and influence upon the value of real estate, both properties located in cities, towns and villages, as well as farming properties served by the roads. It comes in intimate contact with the citizens who do the voting and militates directly to their permanent comfort or discomfort, their greater prosperity or smaller business opportunity.

In looking over the list of the candidates in various localities one cannot help but feel deep disappointment in the quality and character of men who seem to be available for the position of road commissioner. The petty politician who has been found wanting for some other more important office, as far as the party organization is concerned, is handed a nomination for road commissioner away down at the bottom of the big blanket ballot, and he generally rides in with the party so that the voters only find out who they have elected for road commissioner several months after the election. Then they begin to find out that it is costing the township a dollar and a half to haul a yard and a half of rock one mile for road repair while the commissioners threaten to start a crusher of their own if the man at the crushing plant dares to charge them more than 75 cents a load for the material at the spout of the crusher bin.

It's amusing sometimes to observe the gymnastics of the township commission. Every teamster who votes for a road commissioner feels entitled to make a good round profit by charging double for hauling the rock for the repair of ruts and breaks in the road. When it comes to building a strip of new road it is better to be a teamster on the right side of the road commissioner than it is to be the president of the village bank, for that teamster will get prices that contain a margin of profit that beats the Dutchman's one per cent.

The Atlas Mortar Co. has been incorporated in San Francisco, with a capital stock of \$50,000, by J. B. Kennedy, T. H. Laine, R. A. Burr, H. W. Zagoren and J. F. DeVault.

The Haskell Sand and Gravel Co., of Haskell, Saline county, Ark., has been incorporated with a capital stock of \$10,000, half of which is subscribed. The officers are J. G. Opitz, president; H. J. Archer, vice president; H. T. Quentz, secretary-treasurer.

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Hard Knocks*

The permanent plaster for interior walls.

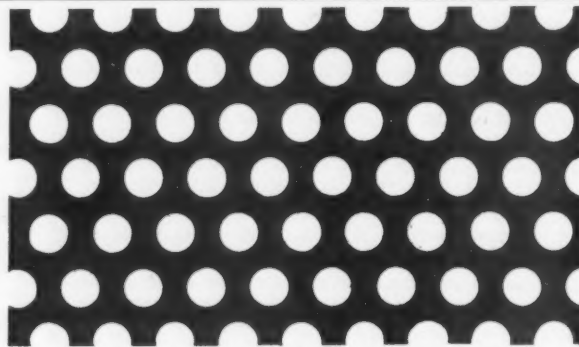
May be retempered as often as necessary.

Makes a perfect bond on concrete, brick,
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NEW YORK CHICAGO**Write us for prices on "BEAR CREEK"
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Hydrated Lime. Prompt Shipment.****HANNIBAL LIME CO.** HANNIBAL
MO.**If you don't see what you
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WE'LL FIND IT FOR YOU****PERFORATED METALS**

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quality, our deliveries are prompt,
and prices the lowest. This is
why we number among our customers
so many of the largest users of Per-
forated Metals throughout the United
States.

WE SOLICIT YOUR INQUIRIES**CROSS ENGINEERING CO.**
CARBONDALE, PA.**SCREENS****For Every Purpose**

Revolving Screens

Shaking Screens

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Coke, Steel Floors and Gratings, Gril-
les and Ventilators, Fire Escape Plat-
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ROCK PRODUCTS AND BUILDING MATERIALS, 537 So. Dearborn St., Chicago, Ill.**ROCK PRODUCTS AND
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Curry Mfg. Co., J. P. (bag tyers).
Faberhill Mfg. Co. (bag tyers).
United Wire Tie Co.
Urschel Bates Valve Bag Co.
West Jersey Bag Co., The.

BELTING.

H. W. Caldwell & Co.
Chicago Belting Co.
Dull & Co., R. W.
B. F. Goodrich & Co.
Imperial Belting Co.
Main Belting Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

BRICK.

Alliance Clay Products Co.
Alliance Brick Co.
American Brick & Tile Co.
Belden Brick Co.
Hocking Valley Clay Co.
Mason City Brick & Tile Co.
Metropolitan Paving Brick Co.

BRICK OLAMPS.

The P. D. Crane Co.

BRICK PAVING.

Alton Brick Co.
Harris Brick Co.
Metropolitan Paving Brick Co.
National Paving Brick Mfrs. Assoc.

BUCKETS, DUMPING AND GRAB.

Atlas Car & Mfg. Co.
H. W. Caldwell & Co.
Hendrick Mfg. Co.
Owen Bucket Co.
Willis Shaw Mch. Co.

CABLES.

American Steel & Wire Co.
Dull & Co., R. W.
Sauerman Bros.

CASTINGS.

Edgar Allen Amer. Mang. Steel Co.
Taylor-Wharton Iron & Steel Co.

CEMENT, HYDRAULIC.

Carolina Portland Cement Co.

CEMENT, PORTLAND.

Atlas Portland Cement Co.
Canada Cement Co.
Carolina Portland Cement Co.
Chicago Portland Cement Co.
Coplay Cement Mfg. Co.
Dexter Portland Cement Co.
French, Samuel H., & Co.
Giant Port. Cement Co.
Kansas City Portland Cement Co.
Lehigh Portland Cement Co.
Marquette Cement Mfg. Co.
Northwestern States Portland Cement Co.
Ohio & Western Lime Co.
Peerless Port. Cement Co.
Phoenix Portland Cement Co.
Sandusky Portland Cement Co.
St. Louis Portland Cement Works.
Security Cement & Lime Co.
Union Sand & Material Co.
Universal Portland Cement Co.
Vulcanite Portland Cement Co.
Whitehall Portland Cement Mfg. Co.
Wolverine Portland Cement Co.
Woodville Lime & Cement Co., The.

CHAINS.

Edgar Allen Amer. Mang. Steel Co.
Columbus Chain Co., The.
Jeffrey Mfg. Co.
Taylor-Wharton Iron & Steel Co.

CLAYWORKING MCHY.

American Clay Mch. Co.
Bartlett, C. O., & Snow Co.

COAL CHUTES.

Kewanee Mfg. Co.

CONCRETE MIXERS.

Jaeger Mach. Co.
Miscampbell, H.

COLORINGS, DRY AND MORTAR.

Samuel Cabot.
Chattanooga Paint Co.
Clinton Metallic Paint Co.
Macneal, James B., & Co.
Ricketson Mineral Paint Works.
Williams, C. K., & Co.

COMPRESSORS.

Clayton Air Compressor Co.

CEMENT FLOOR HARDENERS.

Premier Flooring & Material Co.

CONCRETE REINFORCEMENT.

American Steel & Wire Co.

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Austin Mfg. Co.
Bartlett, C. O., & Snow Co.
Caldwell, H. W., & Sons Co.
Dull, Raymond W., & Co.
Ehram, J. B., & Sons Mfg. Co.
Goodrich Co., The B. F.
Link Belt Co.
Jeffrey Manufacturing Co.
McLanahan Stone Machine Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

CONSULTING GEOLOGISTS.

Grimsley, G. P., Ph. D.
Robt. W. Hunt & Co.
Lewis & Co., W. J.

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Allis-Chalmers Manufacturing Co.
American Pulverizer Co.
Austin Mfg. Co.
Bacon, Earl C.
Bartlett, C. O., & Snow Co.
Bonnot Co., The.
Bradley Pulverizer Co.
Butterworth & Lowe.
Ehram, J. B., & Sons Mfg. Co.
Gardner Crusher Co.
Gründler Patent Crusher & Pulverizer Co.
Jeffrey Manufacturing Co.
Kent Mill Co.
Lewistown Foundry & Machine Co.
Martin, Henry.
McLanahan Stone Machine Co.
Pennsylvania Crusher Co.
Power & Mining Mach. Co.
Raymond Impact Pulverizer Co.
Symons Brothers.
Sturtevant Mill Co.
Taylor-Wharton Iron & Steel Co.
Williams Pat. Crusher & Pulverizer Co.

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American Brick & Tile Co.
American Clay Co.
Mason City Brick & Tile Co.

DRILLS.

American Well Works.
Armstrong Mfg. Co.
Cyclone Quarry Drill Co.
Howells Mining Drill Co.
Loomis Machine Co.

DRYERS.

American Process Co.
Bartlett, C. O., & Snow Co.
Ruggles-Coles Eng. Co.
Worrell, S. E.

DUMP CARS.

Atlas Car & Mfg. Co.
Austin Mfg. Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.
Youngstown Car & Mfg. Co.

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Bacon, Earl C.
A. F. Broomell.
Dull, Raymond W., & Co.
Fuller Engineering Co.
Grimsley, G. P.
Robt. W. Hunt & Co.
Improved Equipment Co.
Kirkpatrick, W. C.
Lewis, W. J., & Co.
Meade, R. K.
Nat'l Engineering Co.
Sauerman Bros.
Schaffer Eng. & Equip. Co.
Smidth & Co., F. L.
Stephens-Adamson Mfg. Co.

ENGINES.

Busch-Sulzer Bros.-Diesel Engine Co.
Novo Engine Co.

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Raymond W. Dull Co.
Indianapolis Cable Excavator Co.
Owen Bucket Co.
Sauerman Bros.
Weller Mfg. Co.

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Carolina Portland Cement Co.
Improved Equipment Co.
Mason City Brick & Tile Co.
Union Mining Co.

FURNACES FOR SPECIAL PURPOSES.

Improved Equipment Co.

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Caldwell, H. W., & Son Co.
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Lewiston Fdy. & Mach. Co.

GYPSUM—PLASTER.

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American Cement Plaster Co.
American Keene Cement Co.
Best Bros. Keene's Cement Co.
Cardiff Gypsum Co.
Carolina Portland Cement Co.
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Kelly Plaster Co.
National Mortar & Supply Co.
Niagara Gypsum Co.
Ohio & Western Lime Co.
Plymouth Gypsum Co.
Reeb, M. A.
U. S. Gypsum Co.
Wheeling Wall Plaster Co.

HAIR

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Kritzer, Co., The.
H. Miscampbell.

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Hannibal Lime Co.
Kelley Island Lime & Trans. Co.
Mitchell Lime Co.
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National Mortar & Supply Co.
Niagara Gypsum Co.
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Scioto Lime & Stone Co.
Security Cement & Lime Co.
Woodville Lime & Cement Co.

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Kelley Island Lime & Transport Co.
Mitchell Lime Co.
The Moores Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Niagara Gypsum Co.
Ohio & Western Lime Co., The.
Owens Lime Co.
Scioto Lime & Stone Co.
Security Cement & Lime Co.
Woodville Lime & Cement Co., The.

LIME KILNS.

A. P. Broomell.
Improved Equipment Co.

LOADERS.

Jeffrey Mfg. Co.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

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Davenport Locomotive Wks.
Willis Shaw Mch. Co.

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Taylor-Wharton Iron & Steel Co.

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H. G. Robbins.

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Hendrick Mfg. Co.

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The Heppes Co.
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PLASTER.

See Gypsum.

PLASTER BOARD.

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National Plaster Board Co.
Niagara Gypsum Co.
Plymouth Gypsum Co.
U. S. Gypsum Co.

PLASTER MCHY.

Butterworth & Lowe.
Dunning, W. D.
Ehram, J. B., & Sons Mfg. Co.
Miscampbell, H.
Williams Pat. Crusher & Pulverizer Co.

ROOFING-METAL.

Sykes Metal Lath & Roofing Co.

SEWER PIPE.

Cannelton Sewer Pipe Co.
Houston Bros. Co.
Plymouth Clay Products Co.

SILLO BLOCKS.

American Brick & Tile Co.
Davenport Brick & Tile Co., Davenport, Iowa.
Mason City Brick & Tile Co.

QUARRY CARS.

See Dump Cars.

SAND.

Summit Silica Co.
Union Sand & Material Co.

SAND AND GRAVEL WASHING PLANTS.

Dull & Co., Raymond W.
Stephens-Adamson Mfg. Co.
Webster Mfg. Co.
Weller Mfg. Co.

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Amer. Clay Machy. Co.

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Cross Engineering Co.
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Hendricks Mfg. Co.
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National Eng. Co.
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Sturtevant Mill Co.
Tyler Co., W. S.
Webster Mfg. Company
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Thew Automatic Shovel Co.
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Pennsylvania Crusher Co.

STEAM SHOVEL TEETH.

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Smidth & Co., F. L.

WAGONS.

Troy Wagon Wks. Co., The.

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WALL PLUGS AND TIES.

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Maumee Chemical Co.
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We have large stone crushers at various places. We make a Magnesia and high Carbonate of Lime. All of these limes are the very best on the market.

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WORKS AT Huntington, Ind.; Fostoria, O.; Gibsonburg, O.; Sugar Ridge, O.; Tiffin, O.; Genoa, O.; Limestone, O.; Lime City, O.; Portage, O.; Marion, O.; Bedford, Ind.

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Where building laws are stringent and inspectors super-critical, Monarch Hydrate has never failed to pass successfully all required tests and save the builders vast sums of money and an immense amount of time. Time is an important item—Why waste it? We invite you to join the procession of joyful, satisfied, money-saving users of MONARCH HYDRATED LIME. We Ship Sudden.

THE NATIONAL LIME & STONE COMPANY
CAREY, O.

**IF IT IS
LIME
WE MAKE IT**

BULK and Barrel :- Mason's Hydrate for brick work and Masonry. :- Try a car load of our "LIME FLOUR" Hydrated Finishing Lime and you will find same to be second to none on the market. :- "CLOVER GROWER" for the farmer—Best made. Can ship promptly. A dealer is wanted in every city.

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Stands for the Four Important Essentials:

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Best for Finest White Finishing Coats

Best for Cool Working Chemical Reactions

NATIONAL MORTAR AND SUPPLY CO.

A. H. LAUMAN, President

PITTSBURGH, PA.



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We Want to Sell You PLASTER-- We Want Dealers to Represent US

We have the finest gypsum rock in the country and our plant is equipped with the latest and best machinery, this assures you that you will handle the very best line of plaster—when you represent us. **OUR MOTTO IS QUICK SHIPMENTS.**—We have a daily capacity of 300 tons. **Write us today for prices, etc.**

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Shipping Point: Castalia, Ohio



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Fireproof Partition Blocks
Sackett Plaster Board
Steel Studding

Known as Brands of Quality

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PLYMOUTH GYPSUM CO.
FORT DODGE, IOWA

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THAT IS, IF YOU'RE A PROGRESSIVE
HUSTLER AND WANT US

We want good, reliable agencies, for our face brick. We manufacture smooth face and rough wire-cuts, both in shale and fire clay. The shale burns quite dark and the fire clay "old gold" or brown. Both the shale and fire clay brick are thoroughly vitrified. Write us for samples, prices, etc.

The Alliance Brick Co.
Alliance, O.



United States Custom House and Postoffice, Omaha, Neb.
KALLOLITE PLASTER USED

Kallolite Cement Plaster

Was used on the Omaha Post
Office, as well as many other

**Government and Public
Buildings.**

Kallolite Cement Plaster is manufactured from the Purest Gypsum Rock found in the United States as shown by last Government Report.

CARDIFF GYPSUM PLASTER CO.

Write for literature.

FT. DODGE, IOWA

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BRICK—The Old Way of Handling Them is a Nuisance

In tossing brick out of a car many are broken. A wheelbarrow doesn't carry enough bricks to warrant the time it takes to load, wheel it out and dump it.



Use a CLEVELAND BRICK CLAMP

It is the Newest and Quickest Way

Furthermore, in unloading brick it actually saves ONE-THIRD of the time over the old methods. This clamp is adjustable and will carry from FOUR to TWELVE bricks. There's no fuss or bother. Simply place the clamp down on the bricks and lift the handle.

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Incorporated 1893

Sales Offices:

CANTON, OHIO



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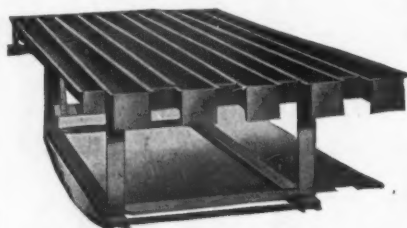
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THERE IS PROFIT FOR YOU in making and selling "D&A" CEMENT FENCE POSTS



"D&A" TEN-MOLD size all-steel outfit

Dealers Wanted

To make "D & A" POSTS you can GUARANTEE and SELL to compete with wood posts 25-30 cents each. "D & A" shape makes Strongest, Lightest and Best Posts with $\frac{1}{2}$ the labor required by other systems. "D & A" MOLDS COSTS LESS.

Six and TEN-MOLD outfits, 30-mold trucks, ANCHOR, BRACE, also Special Molds, many sizes and lengths in stock. The "SHAKING SYSTEM" makes smooth, dense weatherproof posts.

"D&A" CEMENT POSTS used on CATSKILL AQUEDUCT FENCING

N. Y. Board of Water Supply approved "D & A" Posts for other styles specified in contracts on account of the practical and most economical construction of same, being of such shape as will resist an equal strain when applied from any two opposite directions. No weak ways with the "D & A."

AM. RY. ENG. ASS'N Endorse the principals of "D&A" MOLDS and POSTS

18 Am. Rys., Concrete Plants, Lumber and Building Material Dealers in all parts of world use "D & A." Advertising and Circulars furnished dealers for FREE distribution.

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D. & A. POST MOLD CO.

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DEALERS! WE MAKE THE SEWER PIPE

OF FIRE CLAY

That won in the test in Louisville, Ky., April 26th, showing
43 per cent greater strength than competitors.

This means your customers will bring you repeat orders.
We co-operate with dealers.

CANNELTON SEWER PIPE CO.,
CANNELTON, IND.

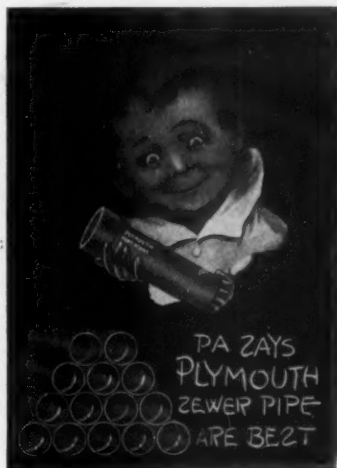
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Dark Red Wire Cut Shale Facing Brick

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Standard Size, 7 inches long x $\frac{7}{8}$ inches wide



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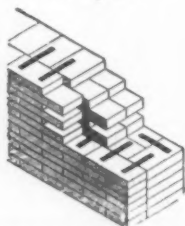
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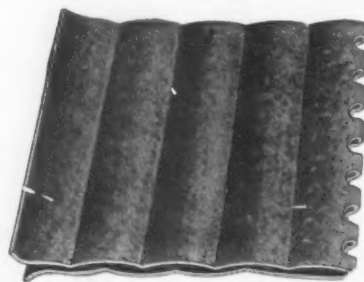
2 $\frac{1}{4}$ inches long x 2 $\frac{1}{4}$ inches wide

Drop us a line, let us know you are interested.

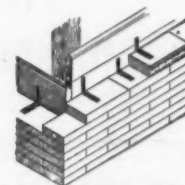


Tie for Solid Wall

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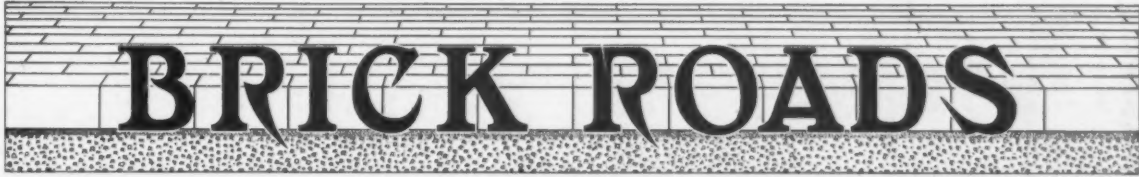
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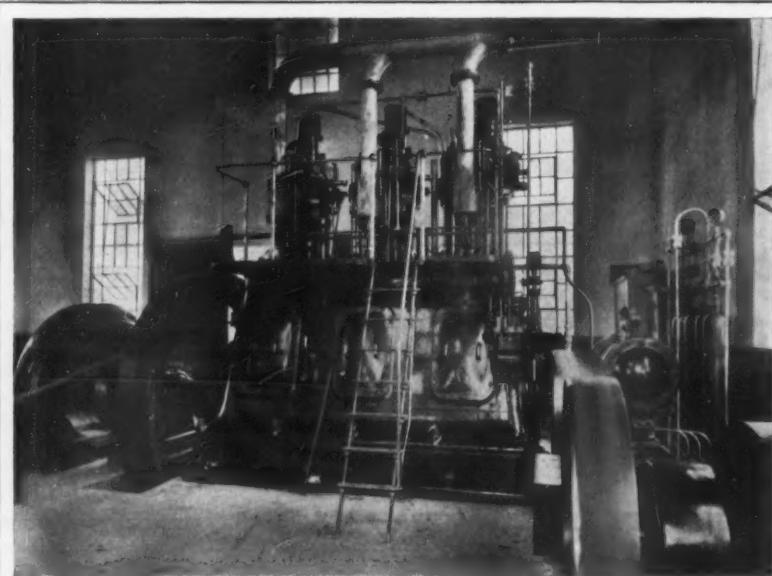
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